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City of Huntington v. AmerisourceBergen Drug Corp. et al, No. 3:17-cv-1362 (S.D.W.Va.)
Cabell County Commission v. AmerisourceBergen Drug Corp. et al, No. 3:17-cv-1665 (S.D.W.Va.)

Expert Report
Lacey R. Keller

Exhibit 2

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I.   Data and Definitions Included in the Analysis

1.   This analysis relies on the following definitions and data, which were analyzed for all years available per source.

A.   General Definitions

2.   The U.S. Food and Drug Administration defines a labeler as, "either a manufacturer, including a repackager or relabeler, or […] the entity under whose own label or trade name the product will be distributed."[1] I use the terms "labelers" and "manufacturers" interchangeably to refer to the entities that operate as labelers of opioids.[2]

3.   I use the term "Case Defendants" to refer specifically to the defendants listed in the case complaint. In this case, the defendants are AmerisourceBergen Corporation ("AmerisourceBergen"), Cardinal Health ("Cardinal"), and McKesson Corporation ("McKesson").

4.   Morphine milligram equivalents ("MMEs") allow for comparative analyses of drugs with different molecular bases (i.e., oxycodone, hydrocodone) by assigning each drug a different conversion to morphine.[3] For example, opioid products of the same milligram weight containing hydromorphone are four times more potent than drugs containing hydrocodone.

5.   Dosage units are defined as the unit of dosage for a patient, such as the number of tablets, milliliters, or patches that may have been prescribed or administered.[4]

6.   I rely upon the expert report of James E. Rafalski to identify prescribing practices that are red flags of potential diversion, including prescribing a high volume of opioids, prescribing a disproportionately large volume for a prescriber's field of practice or geographic area/population, prescribing a disproportionate volume of opioids relative to other non-controlled drugs for the prescriber's field of practice, having large variances or sharp increases in opioid prescribing, prescribing an unusual volume or pattern of antianxiety and antidepressants that are commonly abused with opioids and opioids, and/or prescribing a disproportionate or large volume of high dose opioids for the prescriber's field of practice. In addition, a high volume or proportion of prescriptions that are paid for with cash is another red flag.

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[1] Center for Drug Evaluation and Research. "Drug Approvals and Databases - National Drug Code Directory." *U S Food and Drug Administration Home Page*, Center for Drug Evaluation and Research, www.fda.gov/drugs/informationondrugs/ucm142438.htm.
[2] I refer to these entities as interchangeably as "labelers" and "manufacturers" throughout this report and throughout my previous analysis.
[3] "Opioid Morphine EQ Conversion Factors August 2017." *CMS.gov Centers for Medicare & Medicaid Services*, 3 Apr. 2019, www.cms.gov/Medicare/Prescription-Drug-Coverage/PrescriptionDrugCovContra/.
[4] ARCOS does not provide the dosage for bulk liquids and powders.

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B.   Defendant Productions (Various Years, 1997-2019)

i.   Drug Emporium (2012-2018)

7.   The Drug Emporium data contains the dispensing records for the pharmacy of the same name located at 3 Mall Road in Barboursville, Cabell. The data, which begins on January 1, 2012 and goes through December 31, 2018, includes the date a prescription was written, fill date, prescription number, amount of dosage units filled, and method of payment (e.g., cash or third party). Also included was product name (e.g., "HYDROCO/APAP 7.5-325"), Drug Enforcement Administration ("DEA") schedule, and therapeutic class (e.g., "Analgesics-Opioid"). Prescriber information, including name and DEA number, is provided for each prescription, although the DEA number is omitted for many records and some DEA numbers represent several individual prescribers. I first received this data on or around June 2, 2020, produced under bates DE0033480-DE0033486.

ii.   IQVIA (1997-2017)

8.   The IQVIA Xponent® data is one of many datasets owned and maintained by IQVIA, a healthcare information company formerly known as IMS Health and Quintiles.[5] The data is part of the National Prescription Audit ("NPA") and "is the industry standard for measuring the retail outflow of prescriptions through the 'front door' into the hands of consumers."[6] The data is said to "integrate real-world data" to provide a "timely, accurate picture of[…] competitive performance and demand," as well as a "deep understanding of[…]key drug dispensing channels."[7] IQVIA data is considered by some pharmaceutical companies as the "gold standard in terms of understanding prescription trends."[8]

9.   IQVIA describes the key prescription information offerings of Xponent® data as: "A suite of sub-national reporting providing granular prescription performance perfectly aligned to help manage customer operations, sales targeting, and representative incentive compensation."[9] IQVIA is not reported through a government agency but is proprietary and purchased by financial and pharmaceutical companies.[10] Available on a monthly or weekly basis, IQVIA data consists of a "representative sample of Retail (Chain, Foodstore, Independent pharmacies), Mail Service and Long Term Care pharmacies."[11] The data includes 93% of retail distributions from

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[5] "QuintilesIMS is now IQVIA." *IQVIA*, November 2017, https://www.iqvia.com/newsroom/2017/11/quintilesims-is-now-iqvia

[6] "National Sales Perspectives & National Prescription Audit Overview." *IQVIA*, 2017

[7] "Prescription Information." *IQVIA*, https://www.iqvia.com/locations/united-states/solutions/commercial-operations/essential-information/prescription-information

[8] Bingol Dep. 289:13-17, January 17, 2019

[9] "Prescription Information." *IQVIA*, www.iqvia.com/locations/united-states/commercial-operations/essential-information/prescription-information.

[10] "National Sales Perspectives & National Prescription Audit Overview." *IQVIA*, 2017; Example Bates: ABDCMDL00306518, ABDCMDL00248612, ACTAVIS0280761, ALLERGAN_MDL_00327297, CAH_NYConsolidated-0151612, EPI000521550, JAN-OH-00017030, MCKMDL01208679, MNK-T1_0001172427, PPLP003360321, TEVA_MDL_A_02812072

[11] "Appropriate Use of IMS Information: Financial Community Presentation." *IMS Health*, 2009, http://us.imshealth.com/marketing/fincom/appropriateuse_presentation.pdf

[11] "Prescription Information." *IQVIA*, https://www.iqvia.com/locations/united-states/solutions/commercial-operations/essential-information/prescription-information

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nearly 60,000 pharmacies,[12] 72% of mail order pharmacies' distributions obtained from nearly 400 locations, and 78% of long-term care pharmacies' distributions obtained from over 3,000 locations originating at the pharmacy terminal level.[13]

10. Given that IQVIA reflects the prescribing history of physicians, the dataset could allow anyone who purchases it to determine how frequently a physician prescribed particular drugs, as well as what formulations and in what dosages, and how prescribers ranked among other prescribers. The data also allows for the identification of opioid prescribing patterns of individual physicians compared to their cohorts based on specialty, geography (e.g., city, county, zip code, state), and time period. Although IQVIA reflects only the share of prescriptions that were actually filled given that the data is derived from pharmacy sales records, filling pharmacy information is not provided with the data. [14,15]

11. I first received this data on or around February 1, 2019. I processed this data in my capacity as a plaintiff expert witness in re National Prescription Opiate Litigation, MDL No. 2804. The data was produced as part of Production Volume Number thirteen (ALLERGAN-MDL013) containing the following bates range: ALLERGAN_MDL_02167865 to ALLERGAN_MDL_02485011.[16]

12. Due to rounding differences in such high-volume data, percentages in IQVIA-based tables differ depending on the metrics displayed and the level of granularity used. IQVIA natively represents monthly prescription estimates as decimals. I preserve the raw form of the data in as exact a format as possible while rounding prescriptions to the nearest non-zero whole number. Totals may reflect slightly different values because of differences in underlying aggregation.

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[12] The IQVIA data includes Chain Pharmacies, Independent Pharmacies, Foodstore Pharmacies, Discount Houses, Mass Merchandisers, Standard & Specialty Mail Pharmacies Combined, and Long-Term Care Pharmacies. It does not include Dispensing Physicians, Hospital Pharmacies, Clinic Pharmacies, Closed-Wall HMOs, Home Healthcare, and the Veterans Administration Long-Term Care or Mail Order Pharmacies.

[13] "National Sales Perspectives & National Prescription Audit Overview." *IQVIA*, 2017.

[14] "National Sales Perspectives & National Prescription Audit Overview." *IQVIA*, 2017.

[15] It is my understanding that other data products from IQVIA do contain this information.

[16] "In re National Prescription Opiate Litigation, MDL No. 2804." *Allergan Finance, LLC (f/k/a Actavis, Inc. f/k/a Watson Pharmaceuticals, Inc.),* August 10, 2018 regarding production Volume Number thirteen (ALLERGAN-MDL013) containing the following bates range: ALLERGAN_MDL_02167865 to ALLERGAN_MDL_02485011

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II.   Limitations of Analysis

13. This analysis only considers prescriptions of which Case Defendants could have been aware using the IQVIA Xponent® data. I do not examine activity from the standpoint of other distributors, buyers, or labelers using other datasets available to Case Defendants, such as the ARCOS or chargeback data. IQVIA Xponent® data provided to Plaintiffs for a broader time period (1997-2017) than other data, such as ARCOS (2006-2014) relied upon by other experts. Further, the ARCOS and chargeback datasets would only contain information about prescribers who purchased opioids directly from distributors, a subset of all prescribers. The IQVIA Xponent® data also includes prescriptions written for other opioids and controlled substances that are not included in ARCOS data.

14. This analysis only includes dispensing data from Drug Emporium as described in the Materials Reviewed (Section VIII) and Methodology (Section XI) of this report. If Case Defendants produce additional dispensing or other relevant data after the filing of this report, I reserve the right to amend or supplement my analysis to take account of that information. Upon information and belief, Case Defendants had or had access to dispensing data from other customers beyond Drug Emporium, as well.[17]

15. My opinions are held to a reasonable degree of professional certainty and are based on my professional experience and training and rely on publicly available data and information, documents produced in this litigation, documents produced in In Re: National Prescription Opiate Litigation, Case No. 18-md-2804 (MDL), and documents produced in other opioid litigation, such as the New York Attorney General's pre-litigation investigation. This analysis reflects findings and opinions based on the data that I received and was able to process prior to the filing of this report. I acknowledge that there are additional sources that I was not able to consider for this report and I continue to review documents and gather information. Should substantial new data or clarifications become available to me, I reserve the right to update my analysis.

16. The data included in this analysis is limited to the following fourteen opioid drug codes: buprenorphine, codeine, dihydrocodeine, fentanyl, hydrocodone, hydromorphone, levorphanol, meperidine, methadone, morphine, opium powdered, oxycodone, oxymorphone, and tapentadol. Although there are other opioid products that were bought, sold, and distributed by Case Defendants, such as tramadol or opioid antagonists like naloxone, I do not consider them in this analysis. Whenever I make references to all prescriptions, all drugs, or similar phrasing, I refer to all metrics pertaining to these fourteen drug codes.

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[17] ABDCMDL00003707, CAH FEDWV 00004273, CAH_MDL2804_02113128, CAH_MDL2804_02113129, CAH_MDL_PRIORPROD_HOUSE_0000079, MCKMDL00446527; MCK_WVAAG_00000551, MCKMDL00364970, MCKMDL00402789

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III.   Scope of Report and Summary of Opinions

17. In Overview (Section IV), I provide an overview of prescribing history in Cabell County for practitioners. I rely upon IQVIA Xponent® and Drug Emporium dispensing data. IQVIA and other dispensing data could have been purchased by, was available to, and in some cases, was actually received by and/or reviewed by Case Defendants.[18] This could have provided them with granular information regarding the prescribing of opioids in Cabell County.

18. In Top 1% Prescriber Examples (Section V and Section VI), I exemplify data for some of the top one percent of prescribers in Cabell County based on total dosage units or MMEs prescribed. These prescribers not only ranked in the top one percent in the county but also among all opioid prescribers nationwide. Those exemplified are among opioid-prescribing physicians that could have been known to Case Defendants and do not encapsulate the entirety of prescribers in Cabell County. Instead, these examples demonstrate that it was and is possible to identify prescribers in Cabell County by name and prescribing history.

IV.   Overview

19. This section provides an overview of the opioid landscape in Cabell County using IQVIA data and Drug Emporium dispensing data. The analysis is at the county level and includes annual comparisons, comparisons to the state of West Virginia as well as to the nation, and additional analysis on leading prescribers and prescriptions in Cabell County.

20. Opioid dosage units prescribed in Cabell County trended above state and national averages every year in IQVIA data. At the start of the IQVIA period in 1997, prescribers wrote enough opioid prescriptions to give the average person in the United States or West Virginia fewer than 20 dosage units each – compared to the 40 approximate dosage units per person that every resident of Cabell could have received, given the prescribing rates of Cabell County physicians. In 2006, Cabell County ranked eighth in the entire nation for opioid prescribing per capita. Prescribed dosage units continued to rise in subsequent years, with dosage units in Cabell County peaking in 2009, when every resident of the county could have been prescribed nearly 160 dosage units each. Moreover, the second lowest per capita year in Cabell County (48 dosage units per person in 1998) was higher than the highest per capita year in the nation (47 dosage units per person in 2011).

21. Between 1997 and 2002, opioid dosage units prescribed in Cabell County more than doubled. By 2005, they had more than tripled; and by 2009, dosage units had nearly quadrupled since 1997. The total volume of dosage units and of MMEs increased from the first year in IQVIA data through 2009 and 2010, respectively. By 2010, the average prescriber in Cabell was writing prescriptions totaling over 26,000 dosage units and 450,000 MMEs.

22. While the total volume of prescriptions was increasing, so too was the number of pills and MMEs per prescription. Dosage units written by the average prescriber increased from fewer

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[18] See footnotes 10 & 17.

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than 50 per prescription in 1997 to 70 per prescription in 2009, while average MMEs grew from fewer than 400 per prescription in 1997 to over 1,000 MMEs per prescription by 2009. Average dosage units and MMEs per prescription written remained relatively high for the remainder of the period as compared to pre-2009 levels.

23. The total number of opioid-prescribing physicians in Cabell County continued to rise even after the peak prescribing years for dosage units (2009) and MMEs (2010), with more Cabell physicians writing opioid prescriptions in 2017 than in any previous year in the data.

24. The top one percent of opioid prescribers in Cabell County wrote approximately 20% to 40% of all prescribed dosage units and 20% to 65% of prescribed MMEs in the county each year between 1997 and 2017. Compared to overall opioid prescribing in the county, which had nearly quadrupled by 2009, total prescriptions written by just the top one percent of prescribers in Cabell County over seven-fold during the same time period.

25. Distributors that served Cabell County periodically asked pharmacies for dispensing data.[19, 20] An example of the type of data that may have been provided to Case Defendants as part of their SOMs has been produced from Drug Emporium, a pharmacy located in Cabell County. The data shows prescriptions written primarily by physicians in Cabell County and nearby counties. If Case Defendants had reviewed Drug Emporium's dispensing data, they would have been able to identify physicians whose prescriptions of opioids were disproportionate relative to other drugs.

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[19] ABDCMDL00003707, CAH FEDWV 00004273, CAH_MDL2804_02113128, CAH_MDL2804_02113129,
CAH_MDL_PRIORPROD_HOUSE_0000079, MCKMDL00446527; MCK_WVAAG_00000551, MCKMDL00364970, MCKMDL00402789
[20] An August 2013 McKesson document stated that as part of an update of its Controlled Substance Monitoring Program (CSMP) the distributor would "no longer request or accept individual doctor dispensing data from customers," but McKesson continued to receive such data. MCKSTCT00000132

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Table 1 Annual Opioid Prescriptions
(IQVIA Xponent®: Cabell County, 1997-2017)
This table is sorted chronologically. Percent increases are calculated to the base year of the data (1997).

Year	Opioid Prescriptions	Cumulative Prescriptions	% Increase In Prescriptions	Opioid Dosage Units	Cumulative Dosage Units	% Increase In Dosage Units	Opioid MMEs	Cumulative MMEs	% Increase In MMEs
1997	80,922	80,922	0.0	3,834,550	3,834,550	0.0	30,634,978	30,634,978	0.0
1998	90,560	171,482	11.9	4,519,034	8,353,584	17.9	39,499,506	70,134,484	28.9
1999	103,065	274,547	27.4	5,319,945	13,673,529	38.7	51,979,153	122,113,637	69.7
2000	115,150	389,697	42.3	6,073,883	19,747,412	58.4	71,206,610	193,320,247	132.4
2001	123,461	513,159	52.6	6,981,659	26,729,071	82.1	89,575,799	282,896,046	192.4
2002	137,445	650,603	69.8	8,226,235	34,955,307	114.5	112,509,249	395,405,294	267.3
2003	154,105	804,708	90.4	9,742,686	44,697,992	154.1	139,034,472	534,439,767	353.8
2004	162,029	966,737	100.2	10,409,058	55,107,050	171.4	142,217,424	676,657,190	364.2
2005	179,750	1,146,487	122.1	11,609,337	66,716,387	202.8	160,076,543	836,733,733	422.5
2006	202,358	1,348,845	150.1	13,500,799	80,217,185	252.1	181,925,922	1,018,659,654	493.9
2007	219,660	1,568,505	171.4	14,807,674	95,024,860	286.2	203,088,509	1,221,748,163	562.9
2008	217,264	1,785,768	168.5	14,752,415	109,777,274	284.7	212,599,803	1,434,347,966	594.0
2009	215,237	2,001,005	166.0	15,164,944	124,942,218	295.5	237,450,981	1,671,798,947	675.1
2010	209,121	2,210,127	158.4	14,897,686	139,839,905	288.5	253,398,773	1,925,197,720	727.2
2011	203,904	2,414,031	152.0	14,117,053	153,956,958	268.1	227,969,326	2,153,167,046	644.1
2012	180,904	2,594,935	123.5	12,087,838	166,044,796	215.2	181,296,487	2,334,463,533	491.8
2013	166,846	2,761,780	106.2	11,287,907	177,332,703	194.4	169,322,642	2,503,786,176	452.7
2014	165,163	2,926,944	104.1	11,422,743	188,755,446	197.9	179,710,770	2,683,496,945	486.6
2015	142,237	3,069,181	75.8	10,241,332	198,996,778	167.1	162,048,969	2,845,545,914	429.0
2016	123,845	3,193,026	53.0	8,949,442	207,946,220	133.4	142,983,573	2,988,529,488	366.7
2017	102,374	3,295,400	26.5	7,096,503	215,042,723	85.1	87,995,608	3,076,525,096	187.2

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Figure 1 Opioid Prescriptions Over Time
(IQVIA Xponent®: Cabell County, 1997-2017)
This figure displays both dosage units and MMEs on a monthly basis.
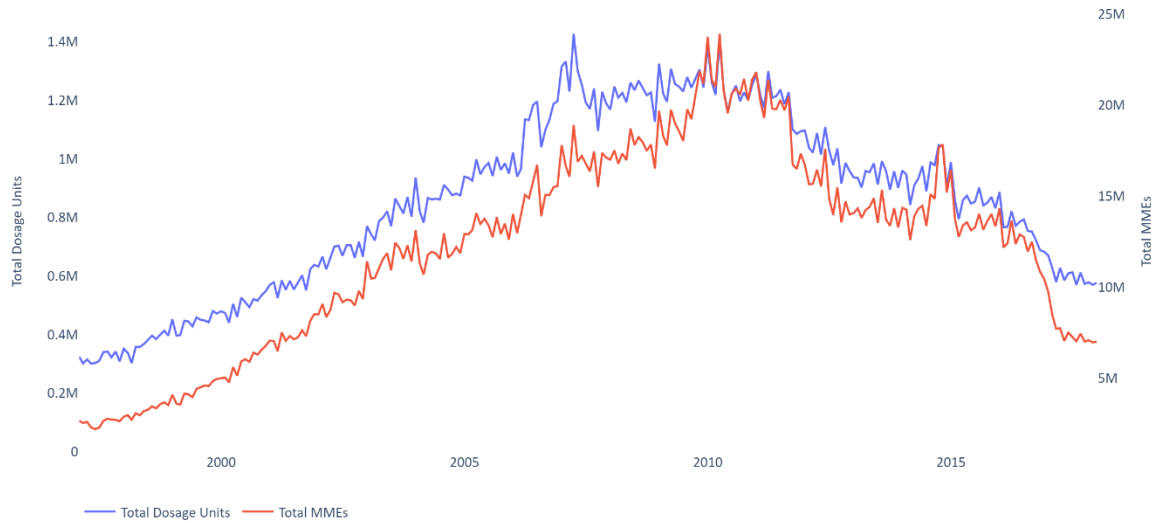
Figure 2 Annual Opioid Dosage Units Per Capita in State Compared to Nation
(IQVIA Xponent®: Cabell County, 1997-2017)

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Table 2 Ten States With Highest Per-Capita Opioid Prescribing
(IQVIA Xponent®: United States, 1997-2017)
This table is sorted by descending dosage units per capita and limited to the ten states with the highest dosage units per capita.

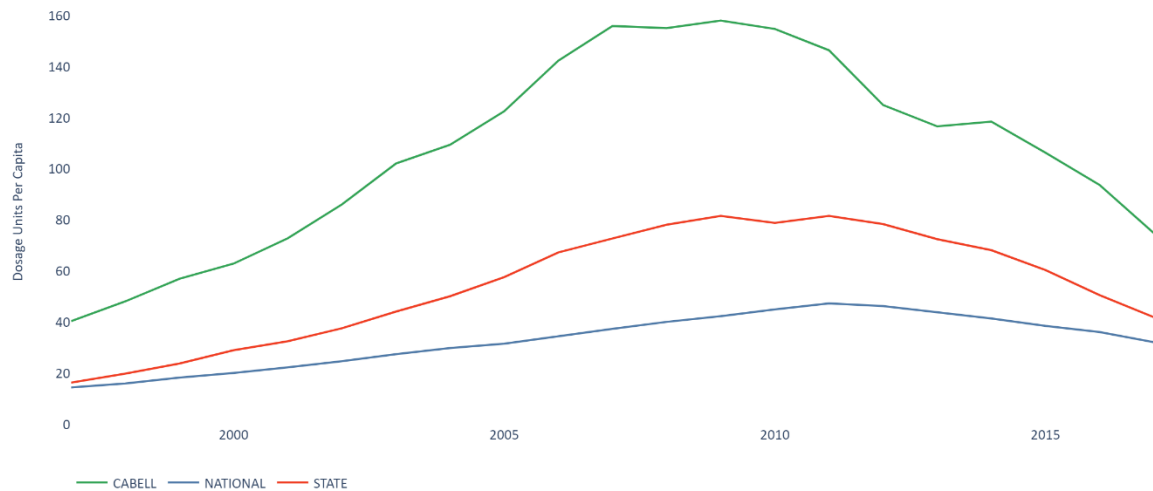| State	Opioid Prescribers	Prescribers Rank (Nation)	Prescribers Per Capita	Prescribers Per Capita Rank (Nation)	Opioid Prescriptions	Prescriptions Rank (Nation)	Prescriptions Per Capita	Prescriptions Per Capita Rank (Nation)	Opioid Dosage Units	Dosage Units Rank (Nation)	Dosage Units Per Capita	Dosage Units Per Capita Rank (Nation)	Opioid MMEs	MMEs Rank (Nation)	MMEs Per Capita	MMEs Per Capita Rank (Nation)
WV	10,701	38	< 0.1	29	34,787,089	35	18.9	3	2,108,301,649	32	1,145.8	1	28,190,930,918	35	15,321.3	4
NV	11,807	35	< 0.1	46	37,717,929	32	15.1	10	2,784,309,798	28	1,111.0	2	45,149,059,687	28	18,015.7	1
TN	39,125	16	< 0.1	16	127,179,162	8	20.7	1	6,796,262,965	9	1,104.1	3	103,018,409,504	9	16,736.2	2
KY	22,276	27	< 0.1	39	78,035,015	16	18.3	4	4,505,044,396	16	1,058.1	4	55,215,154,609	21	12,968.3	8
AL	20,453	28	< 0.1	51	89,632,559	13	19.2	2	4,691,518,057	14	1,004.3	5	63,815,646,757	17	13,660.6	6
OK	18,318	29	< 0.1	44	61,990,451	23	16.6	6	3,608,664,160	22	967.2	6	53,803,377,836	22	14,420.8	5
IN	33,111	19	< 0.1	40	92,703,283	12	14.5	11	5,767,628,314	12	903.5	7	77,966,644,902	12	12,213.1	13
OR	25,999	24	< 0.1	11	56,770,288	26	15.1	9	3,363,813,775	25	895.1	8	47,770,812,241	26	12,712.3	9
AR	13,135	34	< 0.1	50	46,367,897	29	16.3	7	2,485,229,106	29	876.3	9	33,196,972,204	30	11,705.0	16
LA	24,996	25	< 0.1	35	76,902,114	17	16.9	5	3,926,230,138	20	863.9	10	50,649,139,630	24	11,145.0	19

Table 3 Cabell County Ranking Nationwide for Opioid Prescribing
(IQVIA Xponent®: United States, 1997-2017)
This table is sorted chronologically.

Year	Opioid Prescribers	Prescribers Rank (Nation)	Prescribers Per Capita	Prescribers Per Capita Rank (Nation)	Opioid Prescriptions	Prescriptions Rank (Nation)	Prescriptions Per Capita	Prescriptions Per Capita Rank (Nation)	Opioid Dosage Units	Dosage Units Rank (Nation)	Dosage Units Per Capita	Dosage Units Per Capita Rank (Nation)	Opioid MMEs	MMEs Rank (Nation)	MMEs Per Capita	MMEs Per Capita Rank (Nation)
1997	392	328	< 0.1	68	80,922	259	0.9	45	3,834,550	222	40.3	23	30,634,978	237	321.9	26
1998	398	325	< 0.1	62	90,560	260	1.0	44	4,519,034	212	48.0	18	39,499,506	227	419.7	23
1999	396	336	< 0.1	64	103,065	255	1.1	44	5,319,945	209	56.9	18	51,979,153	222	555.6	23
2000	414	314	< 0.1	54	115,150	250	1.2	36	6,073,883	210	62.8	20	71,206,610	211	736.1	23
2001	411	327	< 0.1	55	123,461	247	1.3	32	6,981,659	209	72.7	21	89,575,799	204	932.7	27
2002	426	315	< 0.1	52	137,445	238	1.4	28	8,226,235	198	85.9	19	112,509,249	192	1,175.1	24
2003	433	319	< 0.1	52	154,105	229	1.6	25	9,742,686	186	102.0	12	139,034,472	191	1,455.0	16
2004	482	310	< 0.1	43	162,029	236	1.7	28	10,409,058	191	109.3	13	142,217,424	214	1,493.3	23
2005	497	309	< 0.1	43	179,750	217	1.9	20	11,609,337	184	122.4	11	160,076,543	200	1,688.2	19
2006	499	314	< 0.1	43	202,358	203	2.1	14	13,500,799	178	142.2	8	181,925,922	206	1,916.2	18
2007	515	311	< 0.1	38	219,660	204	2.3	12	14,807,674	180	155.8	10	203,088,509	197	2,136.4	22
2008	530	308	< 0.1	38	217,264	215	2.3	14	14,752,415	192	154.9	15	212,599,803	208	2,233.0	21
2009	544	309	< 0.1	40	215,237	224	2.2	20	15,164,944	201	157.9	15	237,450,981	200	2,472.4	17
2010	556	310	< 0.1	39	209,121	240	2.2	25	14,897,686	211	154.6	24	253,398,773	201	2,630.0	23
2011	578	306	< 0.1	39	203,904	250	2.1	34	14,117,053	243	146.3	36	227,969,326	236	2,362.2	33
2012	589	311	< 0.1	41	180,904	281	1.9	50	12,087,838	278	124.8	60	181,296,487	285	1,872.5	80
2013	604	309	< 0.1	39	166,846	298	1.7	60	11,287,907	286	116.5	64	169,322,642	295	1,747.5	78
2014	595	318	< 0.1	42	165,163	288	1.7	45	11,422,743	267	118.4	51	179,710,770	273	1,862.0	45
2015	589	321	< 0.1	44	142,237	308	1.5	53	10,241,332	284	106.2	57	162,048,969	282	1,679.9	59
2016	612	309	< 0.1	37	123,845	326	1.3	80	8,949,442	309	93.5	83	142,983,573	299	1,494.6	70
2017	625	305	< 0.1	36	102,374	350	1.1	114	7,096,503	343	74.7	126	87,995,608	395	926.7	236

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Table 4 Contribution of Top 1% of Prescribers in Cabell County to Total Opioid Prescribing (IQVIA Xponent®: Cabell County, 1997-2017)

This table is sorted chronologically. The top 1% of physicians was calculated based on total annually prescribed dosage units or MMEs.

Year	Top One Prescribers	Opioid Prescribers	Top One Opioid Dosage Units	Opioid Dosage Units	Top One Percent Share Opioid Dosage Units	Top One Opioid MMEs	Opioid MMEs	Top One Percent Share Opioid MMEs
1997	6	392	997,345	3,834,541	26.0	10,043,332	30,634,970	32.8
1998	5	398	1,196,033	4,519,027	26.5	11,900,298	39,499,504	30.1
1999	5	396	1,566,110	5,319,939	29.4	18,188,220	51,979,157	35.0
2000	6	414	2,114,284	6,073,882	34.8	29,657,677	71,206,601	41.7
2001	6	411	2,482,499	6,981,657	35.6	41,916,141	89,575,793	46.8
2002	5	426	2,741,985	8,226,235	33.3	50,280,034	112,509,242	44.7
2003	6	433	3,691,057	9,742,688	37.9	74,565,829	139,034,480	53.6
2004	6	482	3,654,585	10,409,060	35.1	70,107,341	142,217,415	49.3
2005	6	497	4,222,827	11,609,337	36.4	82,215,503	160,076,549	51.4
2006	6	499	5,001,904	13,500,801	37.0	93,980,977	181,925,927	51.7
2007	7	515	5,851,380	14,807,683	39.5	108,151,936	203,088,509	53.3
2008	6	530	5,651,243	14,752,406	38.3	115,597,650	212,599,796	54.4
2009	6	544	6,285,820	15,164,949	41.4	139,570,452	237,450,978	58.8
2010	7	556	6,541,975	14,897,693	43.9	164,205,324	253,398,776	64.8
2011	6	578	5,250,031	14,117,055	37.2	133,486,817	227,969,331	58.6
2012	7	589	3,894,729	12,087,828	32.2	93,772,742	181,296,491	51.7
2013	8	604	3,851,568	11,287,910	34.1	90,242,581	169,322,650	53.3
2014	7	595	3,443,642	11,422,744	30.1	87,075,316	179,710,789	48.5
2015	6	589	3,035,438	10,241,337	29.6	78,833,708	162,048,967	48.6
2016	9	612	3,156,598	8,949,444	35.3	79,170,027	142,983,588	55.4
2017	9	625	2,194,467	7,096,509	30.9	36,691,200	87,995,616	41.7

Figure 3 Total Opioid Prescriptions Written by Top 1% vs. Remaining 99% of Prescribers (IQVIA Xponent®: Cabell County, 1997-2017)

This figure displays dosage units. The top 1% of physicians was calculated based on total annually prescribed dosage units or MMEs.
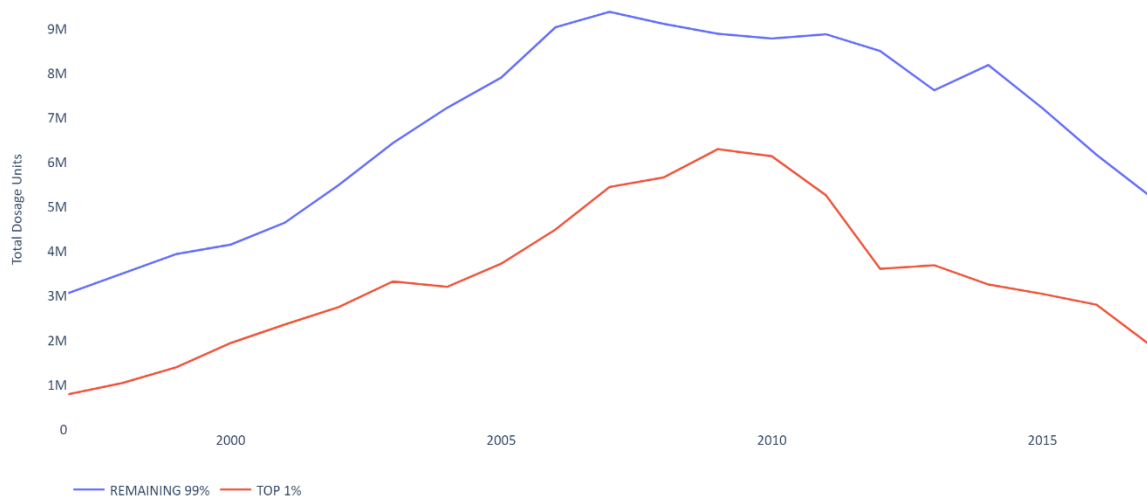
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Figure 4 Average Opioid Dosage Units and MMEs per Prescription
(IQVIA Xponent®: Cabell County, 1997-2017)
This figure displays monthly average dosage units per prescription and monthly average MMEs per prescription across all prescribers.
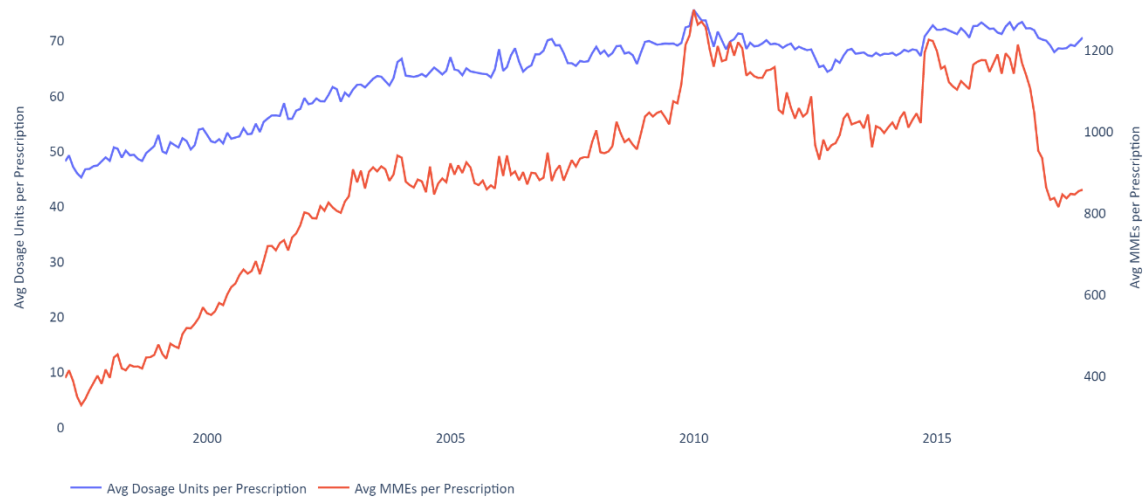
Table 5 Average Opioid Prescribing Per Physician and Prescription Over Time
(IQVIA Xponent®: Cabell County, 1997-2017)
This table is sorted chronologically.

Data Year	Opioid Prescribers	Average Prescriptions Per Prescriber	Average Dosage Units Per Prescriber	Average Dosage Units Per Prescription	Average MMEs Per Prescriber	Avg MMEs Per Prescription
1997	392	206	9,782	47	78,150	379
1998	398	228	11,354	50	99,245	436
1999	396	260	13,434	52	131,260	504
2000	414	278	14,671	53	171,997	618
2001	411	300	16,987	57	217,946	726
2002	426	323	19,310	60	264,106	819
2003	433	356	22,500	63	321,096	902
2004	482	336	21,596	64	295,057	878
2005	497	362	23,359	65	322,086	891
2006	499	406	27,056	67	364,581	899
2007	515	427	28,753	67	394,347	925
2008	530	410	27,835	68	401,132	979
2009	544	396	27,877	70	436,491	1,103
2010	556	376	26,794	71	455,753	1,212
2011	578	353	24,424	69	394,411	1,118
2012	589	307	20,523	67	307,804	1,002
2013	604	276	18,689	68	280,336	1,015
2014	595	278	19,198	69	302,035	1,088
2015	589	241	17,388	72	275,126	1,139
2016	612	202	14,623	72	233,633	1,155
2017	625	164	11,354	69	140,793	860

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Table 6 Opioid-Prescribing Specialties
(IQVIA Xponent®: Cabell County, 1997-2017)
This table is sorted by descending dosage units.

Prescriber Specialty	Opioid Prescribers	% of Opioid Prescribers	Opioid Prescriptions	% of Opioid Prescriptions	Opioid Dosage Units	% of Opioid Dosage Units	Opioid MMEs	% of Opioid MMEs
FAMILY/GENERAL	441	39.2	1,325,783	40.2	99,287,674	46.2	1,183,224,313	38.5
PAIN MEDICINE	6	0.5	312,210	9.5	26,526,604	12.3	779,931,446	25.4
SURGERY	108	9.6	353,042	10.7	15,937,567	7.4	84,950,529	2.8
ANESTHESIOLOGY	23	2.0	204,304	6.2	14,014,768	6.5	266,096,595	8.6
PHYSICAL/OCCUPATIONAL REHABILITATION	5	0.4	137,653	4.2	12,037,766	5.6	283,021,132	9.2
NEUROLOGY	21	1.9	158,148	4.8	9,426,296	4.4	74,625,774	2.4
ONCOLOGY	18	1.6	77,590	2.4	7,550,046	3.5	116,918,717	3.8
RHEUMATOLOGY	3	0.3	66,469	2.0	6,776,687	3.2	68,352,613	2.2
EMERGENCY/CRITICAL	39	3.5	142,238	4.3	3,710,367	1.7	26,519,559	0.9
OBSTETRICS/GYNECOLOGY	70	6.2	121,386	3.7	3,113,656	1.4	20,854,232	0.7
CARDIOLOGY	33	2.9	32,618	1.0	2,398,729	1.1	21,266,465	0.7
PSYCHIATRY	52	4.6	35,809	1.1	2,288,594	1.1	37,828,129	1.2
UROLOGY	14	1.2	67,815	2.1	2,204,481	1.0	16,487,155	0.5
DENTISTRY	69	6.1	100,724	3.1	1,925,142	0.9	11,358,163	0.4
ORTHOPEDICS	6	0.5	36,843	1.1	1,618,412	0.8	12,188,644	0.4
OTHER SPECIALTY	24	2.1	37,469	1.1	1,373,594	0.6	9,666,283	0.3
HEMATOLOGY/PHLEBOTOMY	4	0.4	9,182	0.3	831,863	0.4	16,303,423	0.5
ENDOCRINOLOGY	15	1.3	9,124	0.3	711,940	0.3	6,490,156	0.2
PEDIATRICS	46	4.1	18,929	0.6	615,348	0.3	3,443,891	0.1
NEPHROLOGY	6	0.5	8,386	0.3	602,344	0.3	5,181,664	0.2
PATHOLOGY/EPIDEMIOLOGY	14	1.2	9,456	0.3	530,632	0.2	6,669,540	0.2
ADDICTION	1	0.1	6,296	0.2	429,850	0.2	12,950,951	0.4
GASTROENTEROLOGY	10	0.9	3,112	0.1	248,344	0.1	2,851,662	0.1
GERIATRICS	2	0.2	3,417	0.1	239,747	0.1	3,793,667	0.1
PULMONOLOGY	7	0.6	3,627	0.1	233,678	0.1	2,384,544	0.1
ADMINISTRATIVE/MANAGEMENT	7	0.6	2,522	0.1	99,787	0.0	937,197	0.0
OPHTHALMOLOGY	15	1.3	4,011	0.1	95,898	0.0	643,641	0.0
OTHER/UNSPECIFIED SPECIALTY	17	1.5	2,612	0.1	89,840	0.0	659,287	0.0
DERMATOLOGY	6	0.5	2,168	0.1	54,452	0.0	442,807	0.0
RADIOLOGY	21	1.9	1,878	0.1	41,303	0.0	263,827	0.0
VETERINARY	19	1.7	390	0.0	15,418	0.0	152,745	0.0
ALLERGY/IMMUNOLOGY	1	0.1	173	0.0	10,952	0.0	61,341	0.0
PHARMACOLOGY	1	0.1	14	0.0	628	0.0	4,040	0.0
AEROSPACE/HYPERBARIC/NUCLEAR	1	0.1	7	0.0	315	0.0	963	0.0

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Table 7 Opioid-Prescribing Specialties with Per Physician and Prescription Averages
(IQVIA Xponent®: Cabell County, 1997-2017)

This table is sorted by descending average dosage units per prescriber.

Prescriber Specialty	Opioid Prescribers	Average Prescriptions Per Prescriber	Average Dosage Units Per Prescriber	Average Dosage Units Per Prescription	Average MMEs Per Prescriber	Avg MMEs Per Prescription
PAIN MEDICINE	6	2,478	210,529	85	6,189,932	2,498
PHYSICAL/OCCUPATIONAL REHABILITATION	5	1,311	114,645	87	2,695,439	2,056
RHEUMATOLOGY	3	1,055	107,566	102	1,084,962	1,028
ANESTHESIOLOGY	23	423	29,016	69	550,925	1,302
ADDICTION	1	331	22,624	68	681,629	2,057
NEUROLOGY	21	359	21,375	60	169,219	472
ONCOLOGY	18	205	19,974	97	309,309	1,507
ORTHOPEDICS	6	292	12,845	44	96,735	331
FAMILY/GENERAL	441	143	10,721	75	127,764	892
HEMATOLOGY/PHLEBOTOMY	4	109	9,903	91	194,088	1,776
UROLOGY	14	231	7,498	33	56,079	243
SURGERY	108	156	7,027	45	37,456	241
GERIATRICS	2	81	5,708	70	90,325	1,110
NEPHROLOGY	6	67	4,781	72	41,124	618
EMERGENCY/CRITICAL	39	174	4,530	26	32,380	186
CARDIOLOGY	33	47	3,461	74	30,688	652
OTHER SPECIALTY	24	74	2,725	37	19,179	258
ENDOCRINOLOGY	15	29	2,260	78	20,604	711
OBSTETRICS/GYNECOLOGY	70	83	2,118	26	14,187	172
PSYCHIATRY	52	33	2,096	64	34,641	1,056
PATHOLOGY/EPIDEMIOLOGY	14	32	1,805	56	22,686	705
PULMONOLOGY	7	25	1,590	64	16,221	658
DENTISTRY	69	70	1,329	19	7,839	113
ADMINISTRATIVE/MANAGEMENT	7	30	1,188	40	11,157	372
GASTROENTEROLOGY	10	15	1,183	80	13,579	916
PEDIATRICS	46	20	637	33	3,565	182
ALLERGY/IMMUNOLOGY	1	9	548	63	3,067	355
DERMATOLOGY	6	17	432	25	3,514	204
AEROSPACE/HYPERBARIC/NUCLEAR	1	7	315	48	963	147
PHARMACOLOGY	1	7	314	45	2,020	287
OPHTHALMOLOGY	15	13	304	24	2,043	160
OTHER/UNSPECIFIED SPECIALTY	17	7	252	34	1,847	252
RADIOLOGY	21	4	94	22	598	140
VETERINARY	19	1	39	40	383	392

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Table 8 Ten Highest Opioid Prescribers
(IQVIA Xponent®: Cabell County, 1997-2017)

This table is sorted by descending MMEs and limited to the ten highest prescribers in terms of total MMEs. County population was used for per capita calculations. Ranks are among all prescribers in Cabell County.

Name	First Year	Last Year	Prescriber Specialty	Address	City	County	Opioid Prescriptions	Prescriptions Rank	Prescriptions Per Capita	Prescriptions Per Capita Rank	Opioid Dosage Units	Dosage Units Rank	Dosage Units Per Capita	Dosage Units Per Capita Rank	Opioid MMEs	MMEs Rank	MMEs Per Capita	MMEs Per Capita Rank
DELENO WEBB	1997	2017	PAIN MEDICINE	220 13TH ST	HUNTINGTON	CABELL	128,805	3	1.3	3	14,431,799	1	150.9	1	540,977,293	1	5,656.6	1
PHILIP FISHER	1997	2012	PHYSICAL/OCCUPATIONAL REHABILITATION	3554 US ROUTE 60 E	BARBOURSVILLE	CABELL	117,034	4	1.2	4	10,615,781	4	111.0	4	268,391,148	2	2,806.4	2
DAVID CARAWAY	1998	2015	ANESTHESIOLOGY	2900 1ST AVE	HUNTINGTON	CABELL	167,634	1	1.8	1	11,628,572	2	121.6	2	212,130,221	3	2,218.1	3
AHMET OZTURK	1997	2017	PAIN MEDICINE	1623 13TH AVE	HUNTINGTON	CABELL	137,607	2	1.4	2	8,922,862	5	93.3	5	189,244,510	4	1,978.8	4
ANITA DAWSON	1997	2014	FAMILY/GENERAL	501 ONEY AVE	HUNTINGTON	CABELL	102,423	5	1.1	5	11,080,511	3	115.9	3	141,799,529	5	1,482.7	5
DAVID PATICK	1997	2017	FAMILY/GENERAL	5170 US ROUTE 60	HUNTINGTON	CABELL	77,199	6	0.8	6	8,043,903	6	84.1	6	79,847,856	6	834.9	6
DAWN MAC FARLAND	1997	2017	FAMILY/GENERAL	3135 16TH STREET RD	HUNTINGTON	CABELL	41,300	11	0.4	11	4,760,114	8	49.8	8	79,033,459	7	826.4	7
SHAWN COFFMAN	1997	2017	FAMILY/GENERAL	5170 US ROUTE 60	HUNTINGTON	CABELL	36,240	14	0.4	14	3,948,960	12	41.3	12	67,959,757	8	710.6	8
GERRIT KIMMEY	1997	2017	ONCOLOGY	15 KENSINGTON LN	HUNTINGTON	CABELL	35,302	15	0.4	15	3,872,440	13	40.5	13	63,587,841	9	664.9	9
GREGORY CARICO	1997	2017	FAMILY/GENERAL	5170 US ROUTE 60	HUNTINGTON	CABELL	39,409	12	0.4	12	4,083,763	11	42.7	11	48,475,693	10	506.9	10

Table 9 Drug Emporium Ten Highest Overall Prescribers
(IQVIA Xponent®: Cabell County, 1997-2017)

This table is sorted by descending total prescriptions. Ranks are among all Drug Emporium prescribers. "Other Holy Trinity Prescriptions" refers to alprazolam, Xanax®, Soma®, and carisoprodol.[21]

Prescriber	Total Prescriptions	Total Prescriptions Rank	Total Dosage Units	Total Dosage Units Rank	Opioid Prescriptions	Opioid Prescriptions Rank	% Prescriptions Opioids	Opioid Dosage Units	Opioid Dosage Units Rank	% Dosage Units Opioids	Other Holy Trinity Prescriptions	Other Holy Trinity Prescriptions Rank	% Prescriptions Other Holy Trinity	Other Holy Trinity Dosage Units	Other Holy Trinity Dosage Units Rank	% Dosage Units Other Holy Trinity
TIMOTHY SAXE	12,678	1	1,487,045	2	5,727	1	45.2	310,562	1	20.9	320	3	2.5	31,880	6	2.1
MATTHEW HARRIS	12,557	2	1,864,973	1	1,533	4	12.2	153,255	3	8.2	583	1	4.6	86,919	1	4.7
DAVID PATICK	5,179	3	767,536	4	304	25	5.9	49,843	10	6.5	253	4	4.9	61,933	2	8.1
CYNTHIA PINSON	4,990	4	1,050,719	3	884	5	17.7	62,099	7	5.9	143	10	2.9	14,384	21	1.4
MATHEW WEIMER	4,923	5	567,092	7	289	28	5.9	21,640	34	3.8	20	61	0.4	1,940	71	0.3
DONALD KLINESTIVER	4,677	6	513,673	8	1,680	3	35.9	106,801	4	20.8	38	38	0.8	2,364	64	0.5
MARY MARCUZZI	4,659	7	629,350	5	682	6	14.6	65,170	6	10.4	81	18	1.7	10,515	26	1.7
MELIN MOSES	3,798	8	365,634	19	222	41	5.8	21,852	32	6.0	100	16	2.6	15,150	17	4.1
SHAWN COFFMAN	3,602	9	579,023	6	522	10	14.5	76,587	5	13.2	148	9	4.1	36,370	5	6.3
RUSSELL SNYDER	2,790	10	347,354	21	255	33	9.1	23,733	30	6.8	55	28	2.0	6,938	31	2.0

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[21] US-DEA-00002430; DEA_Rannazzisi-00003170

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Table 10 Drug Emporium Ten Highest Proportion of Opioid Prescriptions
(IQVIA Xponent®: Cabell County, 1997-2017)

This table is sorted by descending percent prescriptions of opioids. This table is limited to prescribers with more than 500 total prescriptions. Ranks are among all Drug Emporium prescribers. "Other Holy Trinity Prescriptions" refers to alprazolam, Xanax®, Soma®, and carisoprodol. [22]

Prescriber	Total Prescriptions	Total Prescriptions Rank	Total Dosage Units	Total Dosage Units Rank	Opioid Prescriptions	Opioid Prescriptions Rank	% Prescriptions Opioids	Opioid Dosage Units	Opioid Dosage Units Rank	% Dosage Units Opioids	Other Holy Trinity Prescriptions	Other Holy Trinity Prescriptions Rank	% Prescriptions Other Holy Trinity	Other Holy Trinity Dosage Units	Other Holy Trinity Dosage Units Rank	% Dosage Units Other Holy Trinity
DELENO WEBB	2,056	24	310,584	24	1,782	2	86.7	219,176	2	70.6	30	43	1.5	12,580	23	4.1
DAVID CARAWAY	658	89	59,904	97	537	9	81.6	31,518	19	52.6	0	98	0.0	0	98	0.0
J HOLLINGSWORTH	612	95	48,706	103	416	16	68.0	38,596	14	79.2	0	98	0.0	0	98	0.0
AHMET OZTURK	965	54	69,075	91	630	7	65.3	34,994	15	50.7	9	59	0.9	756	60	1.1
PHILLIP SPANGLER	869	65	46,977	107	469	13	54.0	14,923	38	31.8	25	49	2.9	4,461	40	9.5
JIMMY ADAMS	929	57	81,178	75	466	14	50.2	26,219	25	32.3	0	98	0.0	0	98	0.0
TIMOTHY SAXE	12,678	1	1,487,045	2	5,727	1	45.2	310,562	1	20.9	320	3	2.5	31,880	6	2.1
DAVID STEELE	1,077	51	95,993	65	437	15	40.6	22,475	29	23.4	8	63	0.7	590	64	0.6
RICKY HOUDERSHELDT	911	59	105,437	60	365	18	40.1	30,452	20	28.9	36	40	4.0	5,580	35	5.3
GREG CARICO	547	109	77,362	79	218	33	39.9	24,848	27	32.1	51	32	9.3	10,782	24	13.9

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[22] US-DEA-00002430; DEA_Rannazzisi-00003170

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V. Top 1% Prescriber Examples in Cabell County

26. These abbreviated case studies on individual prescribers and their practices show results for some of the top one percent of opioid prescribers in Cabell County. Although the following examples are limited to Cabell County, the exemplified prescribers also among the top one percent of opioid-prescribing physicians nationwide.

27. These profiles are not meant to represent every prescriber in Cabell County but to illustrate the data that Case Defendants had available to them and what that data would have shown.

Table 11 Cabell County Top 1% of Prescribers Ranking Nationwide, Statewide, and Countywide (IQVIA Xponent®: Nationwide, 1997-2017)
This table is sorted by descending dosage units and is limited to the exemplified prescribers. Highest ranking refers to the highest comparative rank (e.g., first place vs. tenth place) that a prescriber reached in any year between 1997-2017 for themselves, meaning that the highest rank for one prescriber achieved might occur in a different year from that of another prescriber's highest rank.

Name	Prescriber Specialty	Address	City	County	Opioid Prescriptions	Prescriptions Rank (National)	Prescriptions Rank (State)	Prescriptions Rank (County)	Highest Annual Prescriptions Rank (National)	Highest Annual Prescriptions Rank (State)	Highest Annual Prescriptions Rank (County)	Opioid Dosage Units	Dosage Units Rank (National)	Dosage Units Rank (State)	Dosage Units Rank (County)	Highest Annual Dosage Units Rank (National)	Highest Annual Dosage Units Rank (State)	Highest Annual Dosage Units Rank (County)	Opioid MMEs	MMEs Rank (National)	MMEs Rank (State)	MMEs Rank (County)	Highest Annual MMEs Rank (National)	Highest Annual MMEs Rank (State)	Highest Annual MMEs Rank (County)
DELENO WEBB	PAIN MEDICINE	220 13TH ST	HUNTINGTON	CABELL	128,805	404	14	3	310	5	1	14,431,799	278	7	1	153	1	1	540,977,293	108	1	1	60	1	1
DAVID CARAWAY	ANESTHESIOLOGY	2900 1ST AVE	HUNTINGTON	CABELL	167,634	176	6	1	59	2	1	11,628,572	490	10	2	227	8	1	212,130,221	1,019	9	3	481	3	1
ANITA DAWSON	FAMILY/GENERAL	501 ONEY AVE	HUNTINGTON	CABELL	102,423	769	22	5	113	2	1	11,080,511	545	11	3	80	2	1	141,799,529	2,103	27	5	377	1	1
PHILIP FISHER	PHYSICAL/OCCUPATIONAL REHABILITATION	3554 US ROUTE 60 E	BARBOURSVILLE	CABELL	117,034	526	18	4	42	3	1	10,615,781	633	13	4	58	2	1	268,391,148	658	6	2	72	1	1
DAVID PATICK	FAMILY/GENERAL	5170 US ROUTE 60	HUNTINGTON	CABELL	77,199	1,504	35	6	945	20	4	8,043,903	1,196	25	6	564	9	2	79,847,856	4,925	44	6	1,723	25	5
CHANDOS TACKETT	FAMILY/GENERAL	5170 US ROUTE 60	HUNTINGTON	CABELL	53,934	3,568	69	8	2,175	54	6	4,876,266	3,462	54	7	1,917	44	5	47,454,894	9,801	110	11	5,988	68	7
DAWN MAC FARLAND	FAMILY/GENERAL	3135 16TH STREET RD	HUNTINGTON	CABELL	41,300	6,446	110	11	2,462	38	3	4,780,114	3,566	57	8	1,751	18	1	79,033,459	4,994	47	7	2,582	20	2
TERRENCE TRIPLETT	FAMILY/GENERAL	5170 US ROUTE 60	HUNTINGTON	CABELL	45,676	5,193	92	9	3,618	71	9	4,160,580	4,192	67	10	2,542	37	9	44,912,760	10,498	118	12	4,669	55	8
GREGORY CARICO	FAMILY/GENERAL	5170 US ROUTE 60	HUNTINGTON	CABELL	39,409	7,114	121	12	5,708	30	4	4,083,763	4,738	77	11	2,804	26	2	48,475,603	9,546	106	10	4,182	46	4
SHAWN COFFMAN	FAMILY/GENERAL	5170 US ROUTE 60	HUNTINGTON	CABELL	36,240	8,451	147	14	6,851	72	5	3,948,960	5,039	82	12	4,612	34	3	67,959,757	6,170	61	8	5,028	27	3
GREGORY CHANEY	FAMILY/GENERAL	2628 5TH AVE	HUNTINGTON	CABELL	34,375	9,409	165	16	2,330	27	3	2,743,865	9,440	144	16	2,260	10	3	36,135,630	13,846	156	16	3,402	25	2
JOHN TIANO	CARDIOLOGY	1600 MEDICAL CENTER DR	HUNTINGTON	CABELL	24,005	19,011	281	28	74	5	2	1,948,052	16,113	227	23	202	7	1	17,120,628	32,793	350	29	1,638	27	6

i.

Keller Report

Prescriber: Deleno Webb

Figure 5 Image of Board of Medicine Registered Address
(Google Maps: 10 W 6th Ave Suite 300, Huntington, WV)

28. Deleno Webb was a licensed Psychiatrist and Pain Medicine specialist.[23] The West Virginia Workers' Compensation Commission banned Webb in 2005 from receiving payment for treating injured workers based on claims that he was prescribing Oxycontin without conducting physical examinations and was the leading prescriber of Oxycontin in the state.[24, 25] Webb continued prescribing opioids for more than a decade, until voluntarily surrendering his medical license in 2017 following an investigation that found he "commonly treated the patients with excessive dosages of opiates and benzodiazepines," among other claims.[26]

29. Webb was among the top five prescribers in Cabell County every year between 1998 and 2016. In seven of those years, he prescribed more opioid dosage units and MMEs than any other physician in Cabell County. In fact, in 2002 and 2003 Webb was the leading prescriber of opioid dosage units and MMEs in West Virginia. During the IQVIA period, Webb prescribed more than 10 million dosage units of oxycodone alone, ranking first in the state for overall for prescriptions, dosage units, and MMEs. Overall, Webb

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[23] "Public License Search." West Virginia Board of Medicine, https://wvbom.wv.gov/public/search/index.asp.

[24] The Commission recommended patients who had been treated by Webb to "receive appropriate evaluation and treatment, which may include inpatient detoxification" https://www.claimsjournal.com/news/southeast/2005/07/05/56882.htm;

[25] PPLPC031000256122

[26] Webb's medical license also showed five malpractice lawsuits between 1983 and 2005, four which were settled and one which was dismissed. His record indicates that his license to dispense controlled substances expired in 2003. *https://wvbom.wv.gov/public/search/index.asp*

prescribed an average of roughly four times the volume of opioids as prescribed by the average pain management specialist nationwide. By 2011, Webb was prescribing over 1.1 million dosage units – the equivalent of more than 130 pills every hour of every day. Over 30% of the dosage units Webb wrote were for oxycodone 30mg. Over 70% of the prescription dosage units written by Webb filled at Drug Emporium were for opioids, with another 20% of dosage units were for antianxiety medications. Over 20% of Webb's prescriptions for antianxiety medications, beta blockers, and hypnotics were paid for in cash, according to the Drug Emporium data.

30. A February 2012 Cardinal document shows Webb's prescriptions comprising a significant proportion of opioid prescriptions filled by the Medicine Shoppe #0290 between 11/24/2011 to 02/24/2012.[27] According to internal AmerisourceBergen documents from April 2013 and September 2015, Webb was a leading prescriber at a Walgreen store on 6414 US 60 East in Barboursville, WV. In both documents, the pharmacy filled over 70 prescriptions written by Webb.[28] In the 2015 document, Webb was marked as "Clear" ten years after being banned by the West Virginia Workers' Compensation Commission from receiving payment[29, 30] and one year after the West Virginia Board of Medicine received two complaints regarding Webb's prescribing practices.[31] According to an internal McKesson document from July 2016, City Center Pharmacy also stopped filling prescriptions for any new patients for Dr. Webb in 2015, describing him as on the "shady side," and noting that there were "more controlled substance prescriptions coming out of Dr. Webb's office than should be," Webb's prescriptions constituted 10-15% of the pharmacy's controlled substance volume, and was their top oxycodone prescriber.[32]

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[27] CAH FEDWV 00004273

[28] ABDCMDL00282553, ABDCMDL00141589

[29] The Commission recommended patients who had been treated by Webb "receive appropriate evaluation and treatment, which may include inpatient detoxification" https://www.claimsjournal.com/news/southeast/2005/07/05/56882.htm;

[30] PPLPC031000256122

[31] "Public License Search." West Virginia Board of Medicine, https://wvbom.wv.gov/public/search/index.asp.

[32] MCKMDL00332266

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Table 12 Prescriber Rank in County by Year
(IQVIA Xponent®: Cabell County, 1997-2017)
This table is sorted chronologically. Ranks are among all prescribers in Cabell County.

Year	Opioid Prescriptions	Prescriptions Rank	Within Specialty Prescriptions Rank	Opioid Dosage Units	Dosage Units Rank	Within Specialty Dosage Unit Rank	Dosage Units Per Prescription	Opioid MMEs	MMEs Rank	Within Specialty MMEs Rank	MMEs Per Prescription
1997	1,335	13	2	104,504	8	1	78	825,598	8	2	618
1998	2,503	6	2	221,561	2	1	89	2,207,064	3	2	882
1999	3,786	4	2	326,989	2	1	86	4,518,373	2	1	1,194
2000	4,798	3	2	456,439	2	1	95	9,874,566	1	1	2,058
2001	5,688	3	2	606,800	1	1	107	14,422,018	1	1	2,535
2002	7,087	2	2	795,874	1	1	112	21,338,374	1	1	3,011
2003	7,938	3	2	948,077	1	1	119	25,968,758	1	1	3,272
2004	4,934	6	2	632,096	2	1	128	18,609,589	1	1	3,772
2005	5,178	6	2	655,045	4	2	126	19,703,957	1	1	3,805
2006	5,034	7	2	634,237	5	1	126	19,262,538	2	1	3,827
2007	5,061	7	2	626,657	5	1	124	20,386,904	3	1	4,028
2008	5,898	5	2	656,225	4	1	111	24,782,933	2	1	4,202
2009	7,796	4	1	835,436	4	1	107	34,483,265	2	1	4,423
2010	10,224	3	1	1,087,688	3	1	106	47,739,239	2	1	4,669
2011	10,577	3	1	1,140,861	3	1	108	52,310,596	1	1	4,946
2012	9,843	2	1	1,104,694	1	1	112	51,254,538	1	1	5,207
2013	8,110	2	1	947,735	2	1	117	44,438,253	1	1	5,479
2014	7,589	2	2	869,787	1	1	115	41,636,257	1	1	5,487
2015	7,267	2	2	843,215	1	1	116	41,111,386	1	1	5,657
2016	7,563	1	1	883,934	1	1	117	43,624,074	1	1	5,768
2017	597	41	3	53,946	34	3	90	2,479,014	9	3	4,150
TOTAL	128,805	3	2	14,431,799	1	1	112	540,977,293	1	1	4,200

Figure 6 Prescriber Opioid Dosage Units Per Month Compared to Specialty Average – Pain Medicine
(IQVIA Xponent®: Cabell County, 1997-2017)
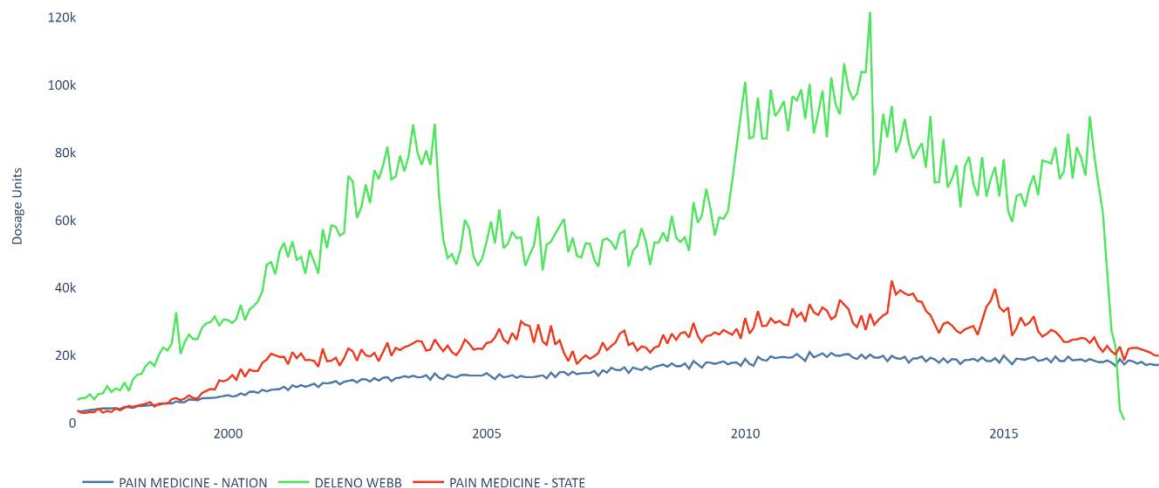
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Figure 7 Prescriber Opioid Dosage Units Per Month Compared to Specialty Average – Psychiatry (IQVIA Xponent®: Cabell County, 1997-2017)
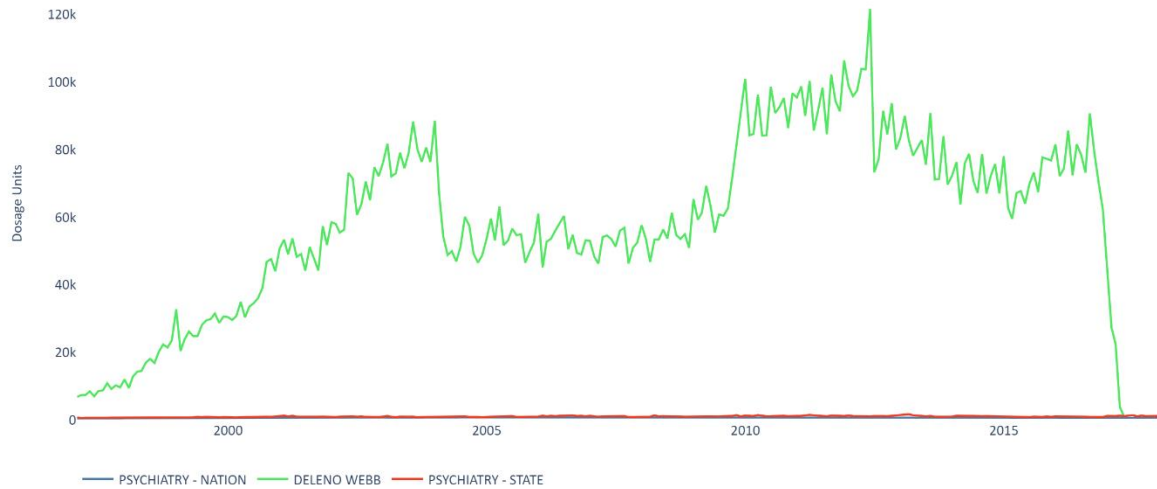

Table 13 Opioid Prescriptions by Drug Name
(IQVIA Xponent®: Cabell County, 1997-2017)

This table is sorted by descending dosage units. Ranks are among all prescribers in Cabell County.

Drug Name	Opioid Prescriptions	Prescriptions Rank	Within Specialty Prescriptions Rank	Opioid Dosage Units	Dosage Units Rank	Within Specialty Dosage Unit Rank	Opioid MMEs	MMEs Rank	Within Specialty MMEs Rank
OXYCODONE	85,307	1	1	10,057,274	1	1	424,338,445	1	1
HYDROCODONE	27,210	14	2	3,259,003	8	2	30,052,951	7	2
OXYMORPHONE	10,510	1	1	677,867	1	1	60,421,206	1	1
MORPHINE	4,324	3	2	286,300	3	2	20,552,680	2	1
METHADONE	532	13	2	104,481	6	2	2,808,967	8	2
CODEINE	359	146	2	31,007	77	2	269,159	44	2
HYDROMORPHONE	132	19	2	9,567	19	3	235,011	16	3
FENTANYL	402	31	4	5,383	27	3	2,291,652	24	3
DIHYDROCODEINE	27	1	1	906	5	1	6,796	2	1
TAPENTADOL	1	77	5	11	102	5	426	100	5

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Table 14 Opioid Prescriptions by Drug Formulation
(IQVIA Xponent®: Cabell County, 1997-2017)

This table is sorted by descending dosage units and includes drug formulations with at least 3% of total prescriptions, dosage units, or MMEs.

Drug and Dosage	Prescriptions	% of Opioid Prescriptions	Opioid Dosage Units	% of Opioid Dosage Units	Opioid MMEs	% of Opioid MMEs
OXYCODONE 30 MG	33,172	25.8	4,623,682	32.0	208,065,688	38.5
OXYCODONE 15 MG	20,166	15.7	2,551,987	17.7	57,419,696	10.6
HYDROCODONE 10 MG	17,269	13.4	2,311,586	16.0	23,115,858	4.3
OXYCODONE 40 MG	12,488	9.7	955,491	6.6	57,329,450	10.6
HYDROCODONE 7.5 MG	9,089	7.1	882,589	6.1	6,619,419	1.2
OXYCODONE 80 MG	6,111	4.7	534,598	3.7	64,151,777	11.9
OXYCODONE 5 MG	3,024	2.3	458,973	3.2	3,442,294	0.6
OXYCODONE 20 MG	5,318	4.1	447,028	3.1	13,410,853	2.5
OXYMORPHONE 40 MG	3,420	2.7	246,230	1.7	29,547,574	5.5
OXYMORPHONE 30 MG	3,871	3.0	223,637	1.5	20,127,323	3.7
OXYCODONE 60 MG	2,449	1.9	178,212	1.2	16,039,076	3.0

Table 15 Opioid Prescriptions Filled at Drug Emporium by Drug Name
(Drug Emporium: 2012-2018)

Drug Class	Total Prescriptions	% of Prescriptions	Opioid Dosage Units	% of Opioid Dosage Units	% Prescriptions Paid In Cash
ANALGESICS - OPIOID	1,782	86.7	219,176	70.6	13.6
ANTIANXIETY	138	6.7	67,229	21.6	20.3
ANTIDEPRESSANTS	60	2.9	9,555	3.1	10.0
ANTICONVULSANTS	26	1.3	8,275	2.7	19.2
ANTIPSYCHOTICS	21	1.0	2,940	0.9	4.8
BETA BLOCKERS	6	0.3	1,620	0.5	33.3
HYPNOTICS	8	0.4	940	0.3	25.0
DERMATOLOGICALS	4	0.2	585	0.2	0.0
ESTROGENS	2	< 0.1	90	< 0.1	0.0
GOUT AGENTS	3	0.1	80	< 0.1	0.0

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    ii.   Prescriber: David Caraway

            Figure 8 Image of Physician's IQVIA Address
            (Google Maps: 2900 1st Ave, Huntington, WV)

31. David Caraway is licensed as an Anesthesiologist and Pain Medicine specialist and practiced at the Center For Pain Relief.[33] Caraway's medical license indicated that he was involved in one 1997 malpractice suit that was dismissed in 2001.[34,35] According to IQVIA data, Caraway's opioid prescriptions drop significantly starting in 2015, after which Caraway became CMO of a California-based medical devices company.[36] A 2010 "Anti-Diversion New Customer Set-Up Checklist" from Cardinal notes that "the center for pain relief does not appear to have a valid license."[37]

32. David Caraway was the second largest prescriber of dosage units in Cabell County during the IQVIA period. For ten consecutive years, Caraway ranked among the top three prescribers of opioid dosage units in the county. From 2007 through 2012, Caraway prescribed over one million dosage units per year – more than ten times the average for

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[33] "Public License Search." West Virginia Board of Medicine, https://wvbom.wv.gov/public/search/index.asp.
[34] Ibid.
[35] CAH_FEDWV_00004273; CAH_FEDWV_0000181
[36] Nevro Corporation, "Leadership Team." https://www.nevro.com/English/us/about/leadership-team/default.aspx
[37] CAH_FEDWV_00000202; CAH_FEDWV_00000202

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anesthesiologists. Over 80% of prescriptions written by Caraway filled at Drug Emporium were for opioids. According to an internal AmerisourceBergen document from April 2013, Caraway was also a leading prescriber at the Walgreen store located at 111 4th Ave in Huntington, WV.[38] In the last year that Caraway prescribed over one million dosage units (2012), McKesson and Cardinal employees shared an article in which Caraway was quoted as saying he has seen a 20-30% increase in patient referrals and that patients "travel several hours" to see him because other doctors "have balked at writing painkiller prescriptions out of fear of prosecution."[39] In the same article, he went on to say "the laws are too restrictive." [40]

Table 16 Prescriber Rank in County by Year
(IQVIA Xponent®: Cabell County, 1997-2017)
This table is sorted chronologically. Ranks are among all prescribers in Cabell County.

Year	Opioid Prescriptions	Prescriptions Rank	Within Specialty Prescriptions Rank	Opioid Dosage Units	Dosage Units Rank	Within Specialty Dosage Unit Rank	Dosage Units Per Prescription	Opioid MMEs	MMEs Rank	Within Specialty MMEs Rank	MMEs Per Prescription
1998	582	38	3	35,884	30	3	62	888,436	12	2	1,526
1999	619	44	3	44,375	24	2	72	941,856	12	2	1,521
2000	1,156	20	1	81,058	15	1	70	1,815,325	9	1	1,570
2001	1,094	23	2	68,441	24	2	63	1,611,886	11	2	1,474
2002	1,964	13	2	128,505	14	2	65	3,602,995	7	1	1,834
2003	8,106	2	1	536,812	4	1	66	15,800,322	2	1	1,949
2004	9,462	1	1	607,472	3	1	64	16,804,919	2	1	1,776
2005	12,931	1	1	843,752	2	1	65	18,927,133	2	1	1,464
2006	14,899	1	1	977,184	3	1	66	20,681,766	1	1	1,388
2007	16,618	1	1	1,120,432	2	1	67	21,454,700	2	1	1,291
2008	17,152	1	1	1,201,237	3	1	70	21,273,684	4	1	1,240
2009	16,744	1	1	1,213,889	3	1	72	19,885,044	4	1	1,188
2010	16,352	2	1	1,180,501	2	1	72	17,819,649	3	1	1,090
2011	16,322	1	1	1,178,570	2	1	72	17,721,412	3	1	1,086
2012	14,416	1	1	1,033,310	2	1	72	14,514,119	2	1	1,007
2013	13,497	1	1	964,892	1	1	71	12,946,662	2	1	959
2014	5,715	4	1	411,726	6	1	72	5,431,048	8	1	950
2015	7	418	3	533	358	3	72	9,264	292	2	1,250
TOTAL	167,634	1	1	11,628,572	2	1	69	212,130,221	3	1	1,265

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[38] ABDCMDL00282553
[39] CAH_MDL2804_02211825, MCKMDL00515990
[40] CAH_MDL2804_02211825, MCKMDL00515990

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Figure 9 Prescriber Opioid Dosage Units Per Month Compared to Specialty Average
(IQVIA Xponent®: Cabell County, 1997-2017)
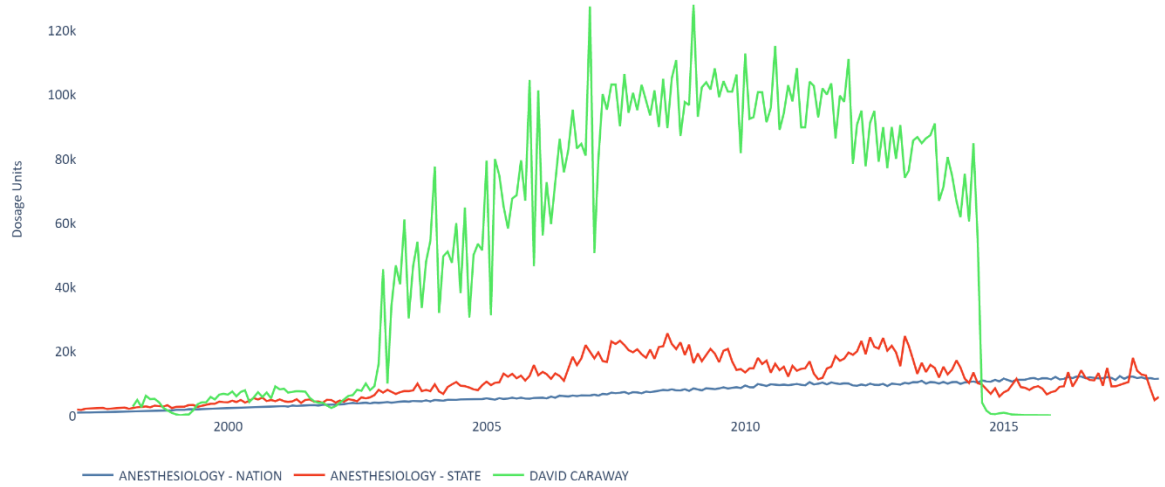
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Table 17 Opioid Prescriptions by Drug Name
(IQVIA Xponent®: Cabell County, 1997-2017)
This table is sorted by descending dosage units. Ranks are among all prescribers in Cabell County.

Drug Name	Opioid Prescriptions	Prescriptions Rank	Within Specialty Prescriptions Rank	Opioid Dosage Units	Dosage Units Rank	Within Specialty Dosage Unit Rank	Opioid MMEs	MMEs Rank	Within Specialty MMEs Rank
HYDROCODONE	75,903	1	1	5,415,106	3	1	44,728,990	3	1
OXYCODONE	50,900	2	1	3,677,218	3	1	57,789,089	4	1
METHADONE	9,138	2	1	1,227,384	2	1	34,997,108	2	1
MORPHINE	16,454	1	1	891,202	1	1	28,357,157	1	1
OXYMORPHONE	2,721	2	1	157,522	2	1	6,739,590	3	1
FENTANYL	11,113	2	1	120,035	2	1	37,903,155	2	1
CODEINE	784	73	1	94,863	28	1	666,797	20	1
HYDROMORPHONE	317	6	2	29,745	7	2	472,550	7	2
TAPENTADOL	208	4	1	14,997	5	1	428,648	7	1
BUPRENORPHINE	88	11	2	350	12	2	46,235	12	2
MEPERIDINE	8	30	2	150	46	2	903	42	2

Table 18 Opioid Prescriptions Filled at Drug Emporium by Drug Name
(Drug Emporium: 2012-2018)
This table is sorted by descending dosage units.

Drug Class	Total Prescriptions	% of Prescriptions	Opioid Dosage Units	% of Opioid Dosage Units	% Prescriptions Paid In Cash
ANALGESICS - OPIOID	547	83.1	33,738	56.3	7.9
ANTICONVULSANTS	43	6.5	10,635	17.8	4.7
MUSCULOSKETAL AGENTS	34	5.2	9,270	15.5	5.9
ANALGESICS/ANTI-INFLAMMATORY	22	3.3	5,130	8.6	4.5
ANTIDEPRESSANTS	7	1.1	870	1.5	0.0
DERMATOLOGICALS	3	0.5	180	0.3	0.0
ULCER DRUGS	1	0.2	60	0.1	0.0
CORTICOSTEROIDS	1	0.2	21	< 0.1	0.0

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iii.   Prescriber: Anita Dawson

Figure 10 Image of Board of Medicine Registered Address
(Google Maps: 1798 Midland Trail Milton, WV)

33. Anita Dawson was a licensed Doctor of Osteopathic Medicine until April 2010, when her license was suspended.[41] In July 2012, Dawson pled guilty to aiding and abetting the illegal acquisition of prescription drugs and was sentenced in January 2013 to two years in federal prison.[42] Nine patients' deaths were attributed to Dr. Dawson's prescribing patterns, including one patient who caused a fatal car crash while under the influence of opioids Dawson prescribed.[43]

34. Anita Dawson ranked third in Cabell County for overall dosage units prescribed during the IQVIA period, despite not having a license to practice for the last seven years in the data. From 2006 through 2009, Dawson was writing prescriptions for over one million dosage units per year – more than 100,000 dosage units more per month than the average general practitioner in the state and nation. The average strength and dosage units per prescription increased almost every year she practiced until she was arrested, peaking at an average of 130 dosage units and 2,227 per prescription in 2010. The year before, she prescribed over 1.4 million dosage units – or 3,800 pills per day, including weekends and holidays.

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[41] West Virginia Board of Osteopathic Medicine, https://www.wvbdosteo.org/verify/details.asp
[42] "Cabell County Doctor Sentenced to Two Years in Prison for Federal Drug Crime." *FBI, Pittsburgh Division.* 7 January, 2013. https://archives.fbi.gov/archives/pittsburgh/press-releases/2013/cabell-county-doctor-sentenced-to-two-years-in-prison-for-federal-drug-crime
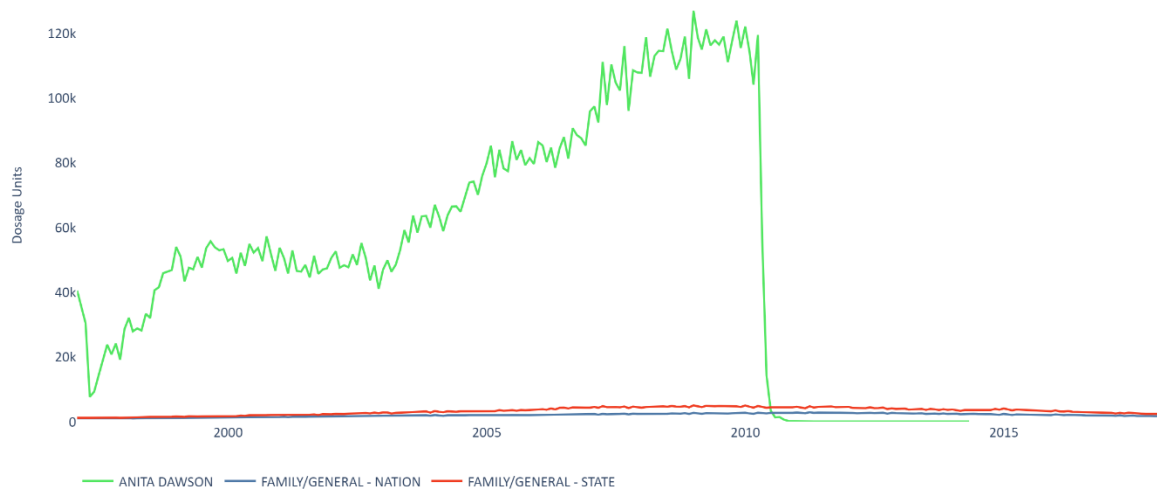[43] Ibid.

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Table 19 Prescriber Rank in County by Year
(IQVIA Xponent®: Cabell County, 1997-2017)
This table is sorted chronologically. Ranks are among all prescribers in Cabell County.

Year	Opioid Prescriptions	Prescriptions Rank	Within Specialty Prescriptions Rank	Opioid Dosage Units	Dosage Units Rank	Within Specialty Dosage Unit Rank	Dosage Units Per Prescription	Opioid MMEs	MMEs Rank	Within Specialty MMEs Rank	MMEs Per Prescription
1997	3,120	2	1	272,151	1	1	87	2,039,680	2	1	654
1998	5,425	1	1	456,433	1	1	84	3,795,329	1	1	700
1999	7,026	1	1	605,534	1	1	86	5,671,060	1	1	807
2000	7,100	1	1	615,317	1	1	87	5,922,967	3	1	834
2001	6,450	2	1	576,031	2	1	89	5,575,010	3	1	864
2002	5,912	3	1	581,043	3	1	98	5,770,530	4	1	976
2003	6,794	4	1	687,212	2	1	101	7,326,949	5	1	1,078
2004	7,838	2	1	825,684	1	1	105	9,559,232	5	1	1,220
2005	8,538	3	1	977,334	1	1	114	12,059,439	4	1	1,413
2006	8,672	3	1	1,029,050	2	1	119	13,396,091	4	1	1,545
2007	9,963	3	1	1,251,260	1	1	126	18,021,181	4	1	1,809
2008	10,937	3	1	1,374,708	1	1	126	21,567,787	3	1	1,972
2009	11,441	3	1	1,413,094	2	1	124	24,016,104	3	1	2,099
2010	3,177	9	4	415,211	7	3	131	7,075,657	6	2	2,227
2011	1	523	190	11	572	210	10	53	574	210	50
2012	24	356	159	350	404	174	15	1,895	422	176	80
2013	3	489	191	41	557	210	13	244	559	212	79
2014	4	467	192	49	538	213	14	320	537	214	91
TOTAL	102,423	5	1	11,080,511	3	1	108	141,799,529	5	1	1,384

Figure 11 Prescriber Opioid Dosage Units Per Month Compared to Specialty Average
(IQVIA Xponent®: Cabell County, 1997-2017)

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Table 20 Opioid Prescriptions by Drug Name
(IQVIA Xponent®: Cabell County, 1997-2017)
This table is sorted by descending dosage units. Ranks are among all prescribers in Cabell County.

Drug Name	Opioid Prescriptions	Prescriptions Rank	Within Specialty Prescriptions Rank	Opioid Dosage Units	Dosage Units Rank	Within Specialty Dosage Unit Rank	Opioid MMEs	MMEs Rank	Within Specialty MMEs Rank
HYDROCODONE	64,359	2	1	7,331,278	1	1	68,511,660	1	1
OXYCODONE	18,009	5	1	2,027,455	5	1	53,796,858	5	1
CODEINE	18,101	1	1	1,658,805	1	1	13,016,867	1	1
MORPHINE	682	20	7	47,464	19	7	1,545,584	20	7
FENTANYL	1,037	14	7	9,477	15	8	4,838,735	15	9
HYDROMORPHONE	115	22	8	3,911	35	17	61,043	32	15
MEPERIDINE	110	1	1	1,680	5	2	8,401	7	3
OXYMORPHONE	6	42	27	263	47	33	15,228	43	29
METHADONE	3	163	77	169	180	86	5,066	163	80
BUPRENORPHINE	1	47	31	10	41	28	88	55	35

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iv.   Prescriber: Philip Fisher

Figure 12 Image of Physician's IQVIA Address and Registered National Provider Identifier (NPI) Address for Huntington Spine Rehab & Pain Center[44,45]
(Google Maps: 3554 US Route 60 E, Barboursville, WV)

35.   Philip Fisher was a licensed Doctor of Osteopathic Medicine until 2011, when his license was suspended and later revoked in 2014.[46] Fisher was the subject of multiple board actions arising from opioid prescribing that resulted in the deaths of seven patients.[47] Among other charges, he was also found by the West Virginia Board of Osteopathic Medicine to have had sexual relationships with at least two of his patients, and to have continued to prescribe opioids to another physician who sought pain medication from Fisher to treat an injury while being aware that the physician was seeking pain medication from several other practitioners.[48] Most recently, Fisher was arrested in Florida in 2019 for a murder-for-hire attempt.[49]

36.   Fisher was the fourth highest overall prescriber in Cabell County across the IQVIA period. Among all Cabell County prescribers, Fisher ranked within the top six for all years from 1997 through 2011. From 1997 to 2010, Fisher's prescribing of dosage units increased roughly six fold from 148,000 dosage units to over one million dosage units. In his highest prescribing year, 2010, Fisher prescribed over two million dosage units –

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[44] "Provider Information for 1407835911." NPPES NPI Registry, U.S. Centers for Medicare & Medicaid Services, npiregistry.cms.hhs.gov/registry/provider-view/1407835911.

[45] "Public License Search." West Virginia Board of Osteopathic Medicine, https://www.wvbdosteo.org/verify/details.asp

[46] "Public License Search." West Virginia Board of Osteopathic Medicine, https://www.wvbdosteo.org/verify/details.asp

[47] "Public License Search." West Virginia Board of Medicine, https://wvbom.wv.gov/public/search/index.asp.

[48] Ibid.

[49] "Ex-Barboursville doctor attempted to have sister killed to gain millions in inheritance," *The Herald Dispatch.* 10 March, 2020. https://www.herald-dispatch.com/news/ex-barboursville-doctor-attempted-to-have-sister-killed-to-gain-millions-in-inheritance/article_8dab785d-d861-5bf0-8a7e-46ee0980437e.html
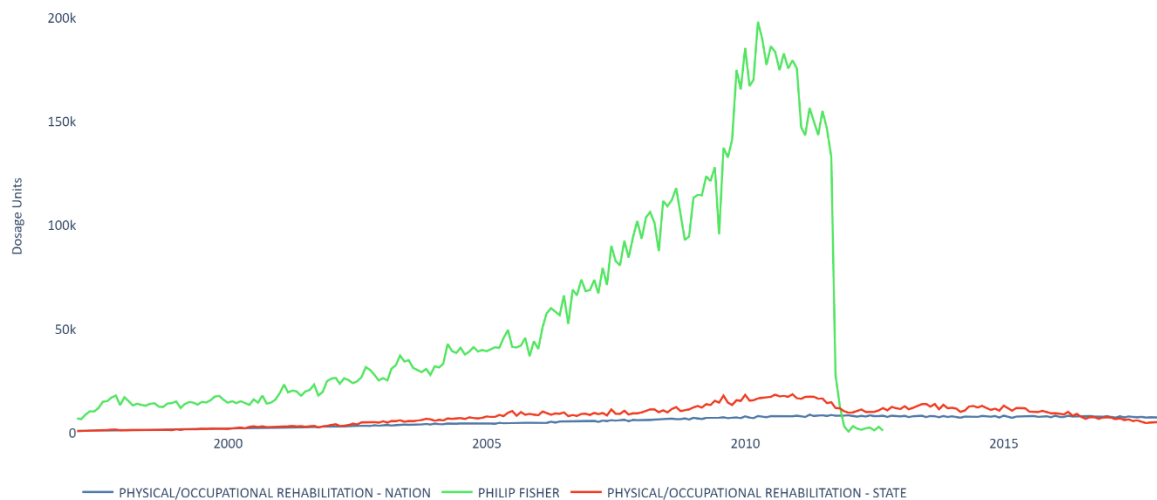
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over 30 times the average physical/occupational therapist in the nation. In that year, he was the second highest prescriber in West Virginia and among the top 50 prescribers in the nation, prescribing nearly 250 opioid dosage units an hour, for every hour of every day in the year.

Table 21 Prescriber Rank in County by Year
(IQVIA Xponent®: Cabell County, 1997-2017)
This table is sorted chronologically. Ranks are among all prescribers in Cabell County.

Year	Opioid Prescriptions	Prescriptions Rank	Within Specialty Prescriptions Rank	Opioid Dosage Units	Dosage Units Rank	Within Specialty Dosage Unit Rank	Dosage Units Per Prescription	Opioid MMEs	MMEs Rank	Within Specialty MMEs Rank	MMEs Per Prescription
1997	2,416	3	1	148,404	5	1	61	1,534,549	5	1	635
1998	2,592	4	1	163,532	6	1	63	2,165,403	5	1	835
1999	2,847	5	1	177,430	6	1	62	2,584,349	4	1	908
2000	2,984	6	1	182,666	6	1	61	3,111,714	4	1	1,043
2001	3,677	4	1	251,256	5	1	68	4,979,193	4	1	1,354
2002	4,252	5	1	316,667	5	1	74	6,746,460	3	1	1,587
2003	4,807	6	1	374,663	6	1	78	7,454,211	4	1	1,551
2004	5,672	4	1	460,916	6	1	81	9,691,602	4	1	1,709
2005	5,845	4	1	507,556	6	1	87	12,030,748	5	1	2,058
2006	8,221	4	1	746,199	4	1	91	18,516,238	3	1	2,252
2007	11,173	2	1	1,009,530	3	1	90	25,826,684	1	1	2,312
2008	12,572	2	1	1,254,599	2	1	100	30,723,102	1	1	2,444
2009	15,778	2	1	1,632,241	1	1	103	43,304,701	1	1	2,745
2010	20,812	1	1	2,157,926	1	1	104	64,304,105	1	1	3,090
2011	13,217	2	1	1,217,060	1	1	92	34,895,475	2	1	2,640
2012	169	194	2	15,137	110	2	89	522,612	49	2	3,084
TOTAL	117,034	4	1	10,615,781	4	1	91	268,391,148	2	1	2,293

Figure 13 Prescriber Opioid Dosage Units Per Month Compared to Specialty Average
(IQVIA Xponent®: Cabell County, 1997-2017)

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Table 22 Opioid Prescriptions by Drug Name
(IQVIA Xponent®: Cabell County, 1997-2017)
This table is sorted by descending dosage units. Ranks are among all prescribers in Cabell County.

Drug Name	Opioid Prescriptions	Prescriptions Rank	Within Specialty Prescriptions Rank	Opioid Dosage Units	Dosage Units Rank	Within Specialty Dosage Unit Rank	Opioid MMEs	MMEs Rank	Within Specialty MMEs Rank
HYDROCODONE	50,939	6	1	4,596,117	4	1	43,034,814	4	1
OXYCODONE	46,720	3	1	3,788,587	2	1	127,704,744	2	1
METHADONE	6,339	3	1	1,527,771	1	1	52,868,866	1	1
MORPHINE	3,828	4	1	264,661	5	1	14,016,497	4	1
HYDROMORPHONE	2,416	1	1	161,895	1	1	2,852,609	1	1
OXYMORPHONE	2,165	3	1	143,580	3	1	11,346,345	2	1
CODEINE	811	71	2	64,119	42	1	474,393	29	1
FENTANYL	3,667	3	1	56,325	3	1	15,741,319	3	1
TAPENTADOL	98	7	1	7,908	9	1	251,072	9	1
LEVORPHANOL	46	1	1	4,498	1	1	98,961	1	1
DIHYDROCODEINE	3	6	1	195	7	1	906	7	1
MEPERIDINE	3	63	1	124	51	1	621	53	1

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v.   Prescriber: Dawn MacFarland

Figure 14 Image of Board of Medicine Registered Address
(Google Maps: 5187 US Route 60 East, Suite 2 Huntington, WV)

37. Dawn MacFarland is licensed as an Internal Medicine specialist.[50] Among fellow general practitioners, MacFarland ranked among the top five prescribers of dosage units in Cabell County every year from 2008 through 2017. Among all specialties, she also ranked among the top ten prescribers in the county every year from 2007 to 2017. On average, MacFarland prescribed over 100 dosage units per prescription between 2006 and 2017.

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[50] "Public License Search." West Virginia Board of Medicine, https://wvbom.wv.gov/public/search/index.asp.
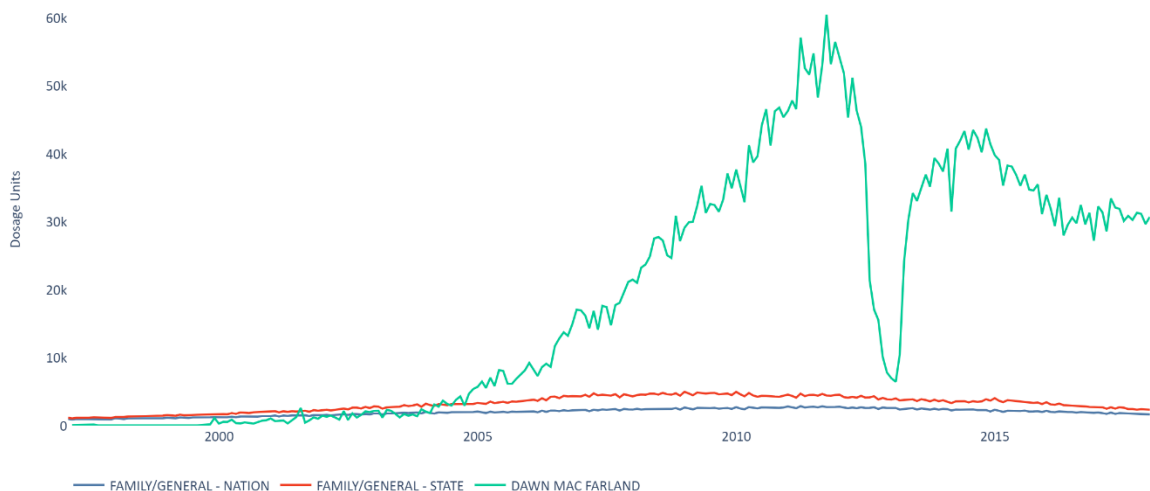
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Table 23 Prescriber Rank in County by Year
(IQVIA Xponent®: Cabell County, 1997-2017)

This table is sorted chronologically. Ranks are among all prescribers in Cabell County.

Year	Opioid Prescriptions	Prescriptions Rank	Within Specialty Prescriptions Rank	Opioid Dosage Units	Dosage Units Rank	Within Specialty Dosage Unit Rank	Dosage Units Per Prescription	Opioid MMEs	MMEs Rank	Within Specialty MMEs Rank	MMEs Per Prescription
1997	491	41	17	40,502	22	8	83	255,785	24	8	521
1998	608	37	12	44,146	22	6	73	481,031	18	5	791
1999	686	39	14	58,421	19	6	85	722,278	17	6	1,053
2000	731	37	12	63,079	20	6	86	944,358	20	6	1,292
2001	727	38	13	64,563	25	10	89	1,212,073	18	7	1,668
2002	1,092	27	11	94,468	22	10	86	1,796,280	12	5	1,645
2003	1,064	30	12	102,525	22	10	96	1,666,029	16	7	1,566
2004	1,263	31	14	128,017	23	9	101	2,463,412	12	5	1,950
2005	1,577	23	9	162,151	17	6	103	2,920,631	11	4	1,852
2006	1,777	21	8	185,070	14	6	104	3,164,365	11	5	1,781
2007	2,046	20	7	222,643	16	6	109	3,804,507	9	4	1,860
2008	2,009	19	8	218,467	13	6	109	3,566,584	10	5	1,775
2009	2,052	17	9	231,735	12	6	113	3,423,885	10	5	1,669
2010	2,185	14	8	234,046	13	7	107	3,512,620	10	5	1,608
2011	2,318	14	8	261,624	11	5	113	4,130,489	7	3	1,782
2012	2,620	9	5	296,875	8	5	113	5,003,470	5	2	1,910
2013	2,681	8	4	310,206	6	3	116	5,977,297	5	2	2,229
2014	2,587	8	4	306,484	7	3	118	5,913,062	7	3	2,286
2015	2,772	7	3	334,834	5	3	121	6,325,626	6	3	2,282
2016	2,483	8	4	302,340	4	2	122	5,652,410	5	2	2,277
2017	2,471	5	3	286,764	3	3	116	5,023,564	3	2	2,033
TOTAL	36,240	14	8	3,948,960	12	7	109	67,959,757	8	4	1,875

Figure 15 Prescriber Opioid Dosage Units Per Month Compared to Specialty Average
 (IQVIA Xponent®: Cabell County, 1997-2017)

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Table 24 Opioid Prescriptions by Drug Name
(IQVIA Xponent®: Cabell County, 1997-2017)
This table is sorted by descending dosage units. Ranks are among all prescribers in Cabell County.

Drug Name	Opioid Prescriptions	Prescriptions Rank	Within Specialty Prescriptions Rank	Opioid Dosage Units	Dosage Units Rank	Within Specialty Dosage Unit Rank	Opioid MMEs	MMEs Rank	Within Specialty MMEs Rank
HYDROCODONE	24,011	16	9	2,862,939	10	5	24,188,102	9	4
OXYCODONE	13,187	6	2	1,611,408	7	2	37,940,848	7	3
MORPHINE	1,586	12	4	139,940	9	2	6,337,395	7	1
OXYMORPHONE	547	6	1	41,134	6	1	2,660,722	6	1
CODEINE	327	158	69	33,372	71	36	267,097	45	26
METHADONE	146	29	14	30,931	22	10	996,375	21	9
TAPENTADOL	137	6	3	15,167	4	2	529,141	4	2
FENTANYL	1,174	12	5	14,660	10	5	5,950,595	11	6
HYDROMORPHONE	88	31	14	8,119	22	9	96,658	22	9
MEPERIDINE	7	32	8	1,170	8	3	11,702	4	2
DIHYDROCODEINE	3	6	5	982	3	3	3,926	6	5
BUPRENORPHINE	88	11	6	293	13	6	50,898	11	6

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vi.   Prescriber: Gregory Chaney

Figure 16 Image of Board of Medicine Registered Address
(Google Maps: 6007 Us Route 60 E Ste 222, Barboursville WV)

38.   Gregory Chaney was licensed as an Internal Medicine specialist until March 2016 when
he surrendered his license following a West Virginia Board of Medicine investigation
following allegations that Chaney "improperly prescribed medications" to a patient who
later died.[51] He was sentenced to six months in federal prison in 2017 after pleading
guilty to prescribing 120 oxycodone 30mg pills to an employee "without any physical
examination of the and without medical necessity" who would then return the pills to
Chaney in lieu of unpaid wages.[52]

39.   From 2012 to 2015, Chaney was the leading prescriber of opioids in his specialty and
among the top five prescribers among all specialties in Cabell County. From 2006 to
2015, Chaney's prescribing increased steadily from 114,299 dosage in 2006 to over
500,000 dosage units in 2015. By late 2015, he was prescribing about 25 times more

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[51] "Public License Search." West Virginia Board of Medicine, https://wvbom.wv.gov/public/search/index.asp.; MCKMDL00332263
[52] "Former physician sentenced to federal prison for obtaining pain pills by fraud," *Department of Justice, Southern District of West Virginia*. 3
April, 2017. https://www.justice.gov/usao-sdwv/pr/former-physician-sentenced-federal-prison-obtaining-pain-pills-fraud

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opioids than the average general practitioner in the nation. Chaney's average prescription strength tripled, rising from 32 dosage units in 1997 to 98 dosage units in 2016.

40. According to an internal AmerisourceBergen document from April 2013, Chaney was a leading prescriber at two Walgreen stores – one on 6414 US 60 East in Barboursville, WV and 111 4th Ave in Huntington, WV.[53] According to a similar AmerisourceBergen document from September 2015, Chaney was listed as leading prescriber at the Walgreen in Barboursville, WV.[54] This time, the document marked him as "Clear." In January of that year, the West Virginia Board of Medicine received a complaint regarding Chaney's prescribing practices that led to a patient's death.[55] In June 2015, Chaney's license to dispense controlled substances expired. Four months after AmerisourceBergen marked Chaney as "Clear", the West Virginia Board of Medicine issued an emergency suspension of his license.[56] According to a July 2016 McKesson Controlled Substance Monitoring Program Regulatory Investigative Report, City Center Pharmacy had stopped filling prescriptions for Chaney earlier in 2016.[57]

Table 25 Prescriber Rank in County by Year
(IQVIA Xponent®: Cabell County, 1997-2017)
This table is sorted chronologically. Ranks are among all prescribers in Cabell County.

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[53] ABDCMDL00282553
[54] ABDCMDL00141589
[55] "Public License Search." West Virginia Board of Medicine, https://wvbom.wv.gov/public/search/index.asp.; MCKMDL00332263
[56] "Public License Search." West Virginia Board of Medicine, https://wvbom.wv.gov/public/search/index.asp.
[57] MCKMDL00332265

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Year	Opioid Prescriptions	Prescriptions Rank	Within Specialty Prescriptions Rank	Opioid Dosage Units	Dosage Units Rank	Within Specialty Dosage Unit Rank	Dosage Units Per Prescription	Opioid MMEs	MMEs Rank	Within Specialty MMEs Rank	MMEs Per Prescription
1997	536	36	15	17,287	43	17	32	150,966	38	14	282
1998	378	60	18	13,731	60	21	36	151,759	48	18	401
1999	428	61	18	16,850	59	21	39	189,781	51	21	444
2000	921	28	8	36,510	36	13	40	459,418	27	10	499
2001	987	27	9	54,847	28	11	56	753,698	25	10	763
2002	812	40	15	53,534	30	14	66	818,927	27	13	1,009
2004	7	361	114	227	366	115	31	6,307	297	103	866
2005	2	435	143	156	402	133	67	5,170	331	120	2,210
2006	1,549	27	12	114,299	26	13	74	1,118,716	31	18	722
2007	1,050	44	23	76,587	36	18	73	720,197	42	23	686
2008	2,124	17	7	149,634	19	11	70	1,422,471	22	13	670
2009	2,471	13	7	164,184	19	12	66	1,579,408	21	13	639
2010	1,805	20	12	123,153	23	16	68	1,183,263	27	18	656
2011	2,137	16	9	161,443	19	13	76	1,477,095	27	19	691
2012	4,247	4	1	361,726	4	1	85	4,079,159	6	3	961
2013	4,465	4	1	399,396	4	1	89	5,793,094	6	3	1,297
2014	5,275	5	1	491,155	3	1	93	7,615,053	4	2	1,443
2015	5,162	3	1	507,186	3	1	98	8,558,804	2	1	1,658
2016	20	357	140	1,961	257	107	100	52,344	138	73	2,670
TOTAL	34,375	16	9	2,743,865	16	9	80	36,135,630	16	9	1,051

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Figure 17 Prescriber Opioid Dosage Units Per Month Compared to Specialty Average
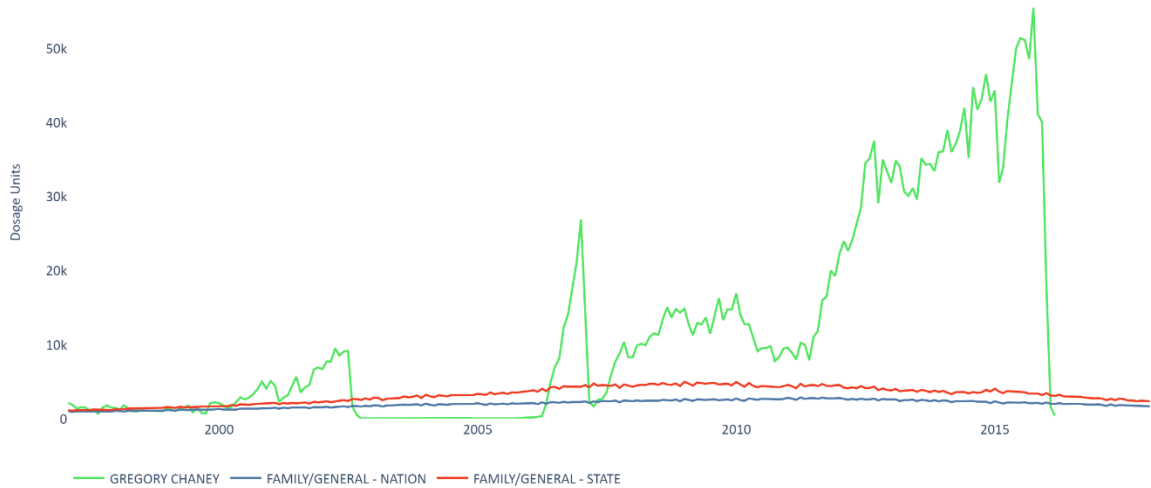(IQVIA Xponent®: Cabell County, 1997-2017)

Table 26 Opioid Prescriptions by Drug Name
(IQVIA Xponent®: Cabell County, 1997-2017)
This table is sorted by descending dosage units. Ranks are among all prescribers in Cabell County.

Drug Name	Opioid Prescriptions	Prescriptions Rank	Within Specialty Prescriptions Rank	Opioid Dosage Units	Dosage Units Rank	Within Specialty Dosage Unit Rank	Opioid MMEs	MMEs Rank	Within Specialty MMEs Rank
HYDROCODONE	27,304	13	7	2,083,299	14	8	18,320,696	14	8
OXYCODONE	5,623	25	9	569,982	15	6	15,819,999	12	7
CODEINE	904	67	32	61,882	45	23	483,476	28	15
TAPENTADOL	67	10	5	8,560	8	5	319,987	8	5
HYDROMORPHONE	126	21	7	6,179	26	11	150,061	20	8
MORPHINE	112	62	36	6,162	69	42	169,037	70	41
METHADONE	46	49	26	5,491	43	24	160,211	43	25
FENTANYL	183	53	30	1,940	52	30	686,575	55	32
OXYMORPHONE	11	36	23	369	41	27	25,588	35	22

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vii.   Prescriber: John Tiano

Figure 18 Image of Physician's IQVIA Address and Board of Medicine Registered Address (Google Maps 2019: 1600 Medical Center Drive, Huntington WV)

41. John Tiano was licensed as Cardiologist until he was placed on probation in 2008 and later revoked in September 2010 by the West Virginia Board of Medicine.[58] Tiano pleaded guilty in federal court for illegally distributing controlled substances with "virtual abandon." [59]

42. Despite prescribing for only five years in the IQVIA data, from 2005 to 2010, he prescribed more opioids than any other cardiologist in Cabell County during the entire IQVIA period. In 2006, he prescribed over one million dosage units of opioids – ranking first in the county across all medical specialties that year. Tiano went from prescribing roughly the same as other cardiologists in 2005 to prescribing over 400 times the average cardiologist nationwide in 2006.

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[58] "Public License Search." West Virginia Board of Medicine, https://wvbom.wv.gov/public/search/index.asp.
[59] **"Public License Search**." West Virginia Board of Medicine, https://wvbom.wv.gov/public/search/index.asp; McGreal, Chris. "Why were opioid pills sent to a West Virginia town of 3,000?" *The Guardian.* 2 October, 2019. https://www.theguardian.com/us-news/2019/oct/02/opioids-west-virginia-pill-mills-pharmacies

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Table 27 Prescriber Rank in County by Year
(IQVIA Xponent®: Cabell County, 1997-2017)

This table is sorted chronologically. Ranks are among all prescribers in Cabell County.

Year	Opioid Prescriptions	Prescriptions Rank	Within Specialty Prescriptions Rank	Opioid Dosage Units	Dosage Units Rank	Within Specialty Dosage Unit Rank	Dosage Units Per Prescription	Opioid MMEs	MMEs Rank	Within Specialty MMEs Rank	MMEs Per Prescription
2005	721	60	1	43,366	43	1	60	425,618	45	1	590
2006	14,329	2	1	1,092,216	1	1	76	9,665,406	6	1	675
2007	8,936	4	1	810,957	4	1	91	7,010,963	6	1	785
2008	18	362	5	1,490	310	4	81	18,409	268	3	1,005
2010	1	513	15	23	536	15	20	232	521	13	200
TOTAL	24,005	28	1	1,948,052	23	1	81	17,120,628	29	1	713

Figure 19 Prescriber Opioid Dosage Units Per Month Compared to Specialty Average
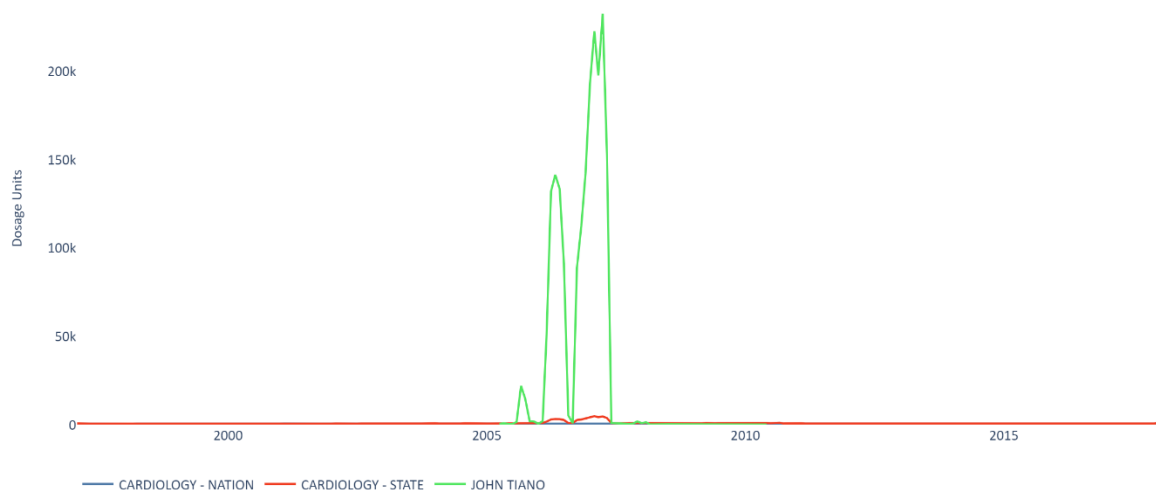(IQVIA Xponent®: Cabell County, 1997-2017)

Table 28 Opioid Prescriptions by Drug Name
(IQVIA Xponent®: Cabell County, 1997-2017)

This table is sorted by descending dosage units. Ranks are among all prescribers in Cabell County.

Drug Name	Opioid Prescriptions	Prescriptions Rank	Within Specialty Prescriptions Rank	Opioid Dosage Units	Dosage Units Rank	Within Specialty Dosage Unit Rank	Opioid MMEs	MMEs Rank	Within Specialty MMEs Rank
HYDROCODONE	23,872	17	1	1,938,497	18	1	16,942,940	16	1
OXYCODONE	50	441	11	6,113	322	4	131,052	264	3
CODEINE	66	354	3	3,017	329	4	17,379	276	4
METHADONE	6	124	2	304	149	4	9,109	138	3
FENTANYL	9	212	2	81	205	2	19,348	234	3
MORPHINE	1	359	11	40	388	12	800	390	12

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VI.   Top 1% Prescriber Examples at Huntington Internal Medicine Group

43.   Certain prescribers in the top one percent of Cabell County opioid prescribers were found to be affiliated with the same practice, the Huntington Internal Medicine Group (HIMG). Similar to other prescribers profiled in this report, these profiled prescribers from HIMG not only ranked in the top one percent in the county but also in the top one percent of all opioid prescribers across all specialties nationwide. The abbreviated profiles that follow are not meant to represent every prescriber at HIMG or in Cabell County but to illustrate the data that Case Defendants had available to them regarding leading (top one percent) Cabell prescribers who all practiced at HIMG, and what that data would have shown Case Defendants.

Figure 20 Image of Huntington Internal Medicine Group
(Google Maps: 5170 US Route 60, Huntington, WV 25707)

44.   HIMG is a large private practice, self-described as a "medical mall", located in a converted Wal-Mart store.[60] For the first several years of the IQVIA period, prescribers with IQVIA addresses at HIMG were prescribing approximately 50,000 dosage units and half a million MMEs per month. In less than ten years, HIMG's prescribing increased to more than 2.5 million MMEs per month – over a 400% increase from 1997. HIMG prescribers continued write more than two million dosage units and 23 million MMEs

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[60] "About HIMG." Huntington Internal Medicine Group (HIMG). Accessed 1 August, 2020. https://www.uhswv.com/about-himg/

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every year until 2013. In total, HIMG prescribers wrote nearly 20% of opioid dosage units prescribed in Cabell County between 1997 and 2017.

Table 29 Huntington Internal Medicine Group Annual Opioid Prescriptions (IQVIA Xponent®: Cabell County, 1997-2017)

This table is sorted chronologically.

Year	Opioid Prescriptions	Cumulative Prescriptions	% Increase In Prescriptions	Opioid Dosage Units	Cumulative Dosage Units	% Increase In Dosage Units	Opioid MMEs	Cumulative MMEs	% Increase In MMEs
1997	9,401	9,401	0.0	683,799	683,799	0.0	5,080,208	5,080,208	0.0
1998	9,930	19,331	5.6	750,087	1,433,886	9.7	5,833,796	10,914,004	14.8
1999	11,719	31,051	24.7	911,692	2,345,578	33.3	8,236,334	19,150,338	62.1
2000	14,272	45,323	51.8	1,149,484	3,495,061	68.1	12,727,391	31,877,729	150.5
2001	16,289	61,612	73.3	1,314,766	4,809,827	92.3	14,673,074	46,550,804	188.8
2002	19,305	80,917	105.3	1,627,343	6,437,170	138.0	18,531,028	65,081,832	264.8
2003	21,086	102,003	124.3	1,892,598	8,329,768	176.8	21,252,341	86,334,173	318.3
2004	21,885	123,888	132.8	2,050,124	10,379,892	199.8	22,618,060	108,952,233	345.2
2005	23,470	147,358	149.7	2,244,005	12,623,897	228.2	24,534,032	133,486,265	382.9
2006	24,537	171,895	161.0	2,418,893	15,042,790	253.7	26,896,630	160,382,895	429.4
2007	25,555	197,450	171.8	2,531,722	17,574,512	270.2	28,181,207	188,564,102	454.7
2008	23,674	221,124	151.8	2,321,597	19,896,109	239.5	26,381,135	214,945,237	419.3
2009	24,106	245,230	156.4	2,389,815	22,285,924	249.5	26,902,707	241,847,945	429.6
2010	24,375	269,606	159.3	2,406,471	24,692,396	251.9	26,691,534	268,539,478	425.4
2011	24,609	294,214	161.8	2,458,028	27,150,424	259.5	26,685,564	295,225,042	425.3
2012	22,630	316,844	140.7	2,144,039	29,294,462	213.5	23,896,555	319,121,597	370.4
2013	18,432	335,277	96.1	1,733,919	31,028,382	153.6	21,202,597	340,324,194	317.4
2014	17,457	352,734	85.7	1,649,481	32,677,863	141.2	20,153,559	360,477,753	296.7
2015	16,848	369,582	79.2	1,654,800	34,332,663	142.0	20,558,362	381,036,116	304.7
2016	16,371	385,953	74.1	1,603,853	35,936,516	134.6	19,505,830	400,541,946	284.0
2017	16,864	402,817	79.4	1,617,634	37,554,149	136.6	18,943,501	419,485,447	272.9

Figure 21 Huntington Internal Medicine Group Opioid Prescriptions Over Time (IQVIA Xponent®: Cabell County, 1997-2017)

This figure displays both dosage units and MMEs.

Keller Report
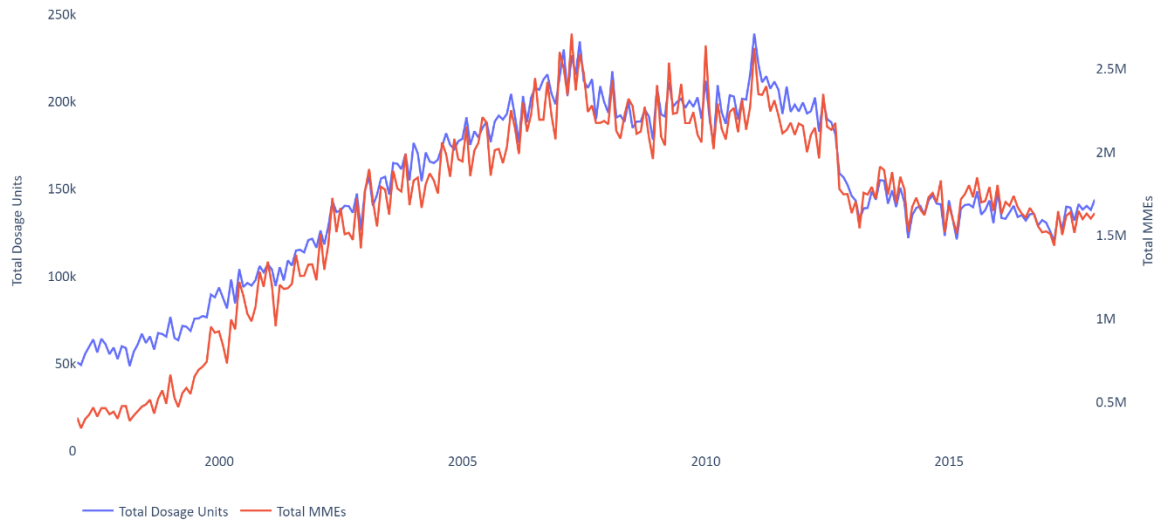
viii.   Prescriber: David Patick

45. David Patick is licensed as an Internal Medicine specialist[61] and is a physician at HIMG. According to his medical license, he was involved in four malpractice suits from 1986 to 2006, two of which were settled and two of which were dismissed. In all but one year between 2012 through 2017, Patick ranked within the top five prescribers of opioids in Cabell County. Across all the years he prescribed, he ranked fourth in his specialty for MMEs and seventh for dosage units.

Table 30 Prescriber Rank in County by Year
(IQVIA Xponent®: Cabell County, 1997-2017)
This table is sorted chronologically. Ranks are among all prescribers in Cabell County.

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[61] "Public License Search." West Virginia Board of Medicine, https://wvbom.wv.gov/public/search/index.asp.

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Year	Opioid Prescriptions	Prescriptions Rank	Within Specialty Prescriptions Rank	Opioid Dosage Units	Dosage Units Rank	Within Specialty Dosage Unit Rank	Dosage Units Per Prescription	Opioid MMEs	MMEs Rank	Within Specialty MMEs Rank	MMEs Per Prescription
1997	491	41	17	40,502	22	8	83	255,785	24	8	521
1998	608	37	12	44,146	22	6	73	481,031	18	5	791
1999	686	39	14	58,421	19	6	85	722,278	17	6	1,053
2000	731	37	12	63,079	20	6	86	944,358	20	6	1,292
2001	727	38	13	64,563	25	10	89	1,212,073	18	7	1,668
2002	1,092	27	11	94,468	22	10	86	1,796,280	12	5	1,645
2003	1,064	30	12	102,525	22	10	96	1,666,029	16	7	1,566
2004	1,263	31	14	128,017	23	9	101	2,463,412	12	5	1,950
2005	1,577	23	9	162,151	17	6	103	2,920,631	11	4	1,852
2006	1,777	21	8	185,070	14	6	104	3,164,365	11	5	1,781
2007	2,046	20	7	222,643	16	6	109	3,804,507	9	4	1,860
2008	2,009	19	8	218,467	13	6	109	3,566,584	10	5	1,775
2009	2,052	17	9	231,735	12	6	113	3,423,885	10	5	1,669
2010	2,185	14	8	234,046	13	7	107	3,512,620	10	5	1,608
2011	2,318	14	8	261,624	11	5	113	4,130,489	7	3	1,782
2012	2,620	9	5	296,875	8	5	113	5,003,470	5	2	1,910
2013	2,681	8	4	310,206	6	3	116	5,977,297	5	2	2,229
2014	2,587	8	4	306,484	7	3	118	5,913,062	7	3	2,286
2015	2,772	7	3	334,834	5	3	121	6,325,626	6	3	2,282
2016	2,483	8	4	302,340	4	2	122	5,652,410	5	2	2,277
2017	2,471	5	3	286,764	3	3	116	5,023,564	3	2	2,033
TOTAL	36,240	14	8	3,948,960	12	7	109	67,959,757	8	4	1,875

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Figure 22 Prescriber Opioid Dosage Units Per Month Compared to Specialty Average
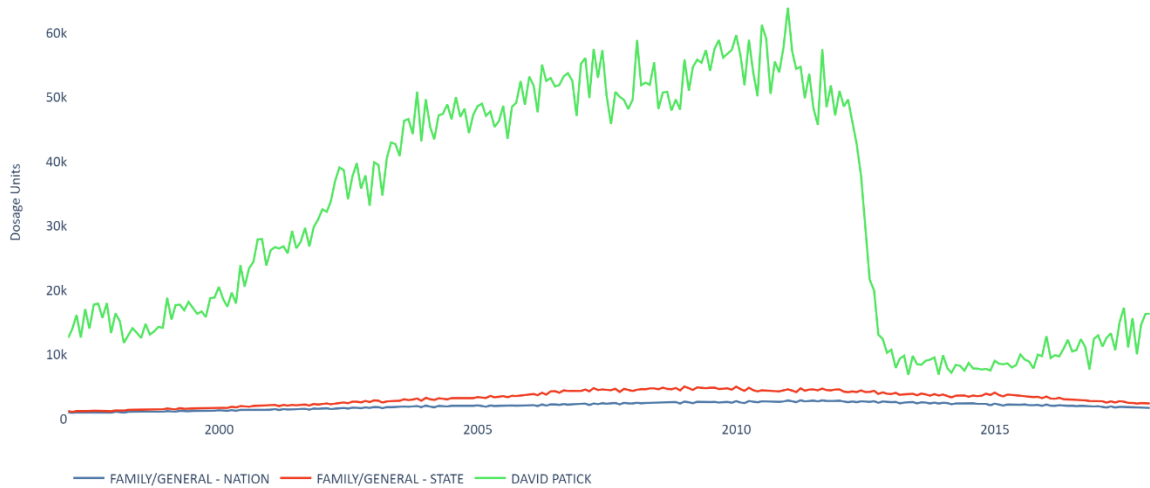(IQVIA Xponent®: Cabell County, 1997-2017)

Table 31 Opioid Prescriptions by Drug Name
(IQVIA Xponent®: Cabell County, 1997-2017)

This table is sorted by descending dosage units. Ranks are among all prescribers in Cabell County.

Drug Name	Opioid Prescriptions	Prescriptions Rank	Within Specialty Prescriptions Rank	Opioid Dosage Units	Dosage Units Rank	Within Specialty Dosage Unit Rank	Opioid MMEs	MMEs Rank	Within Specialty MMEs Rank
HYDROCODONE	61,389	3	2	6,449,244	2	2	51,508,028	2	2
OXYCODONE	8,297	11	4	980,764	9	4	19,047,083	9	4
CODEINE	6,282	2	2	548,557	2	2	3,873,332	2	2
METHADONE	228	22	10	36,346	20	8	1,054,436	20	8
MORPHINE	239	34	15	16,253	36	16	668,089	32	14
FENTANYL	690	21	14	9,354	16	9	3,600,978	17	11
DIHYDROCODEINE	15	3	2	1,346	1	1	5,549	4	3
HYDROMORPHONE	32	59	24	979	91	42	11,820	89	43
TAPENTADOL	13	35	16	717	32	17	41,264	26	14
OXYMORPHONE	5	45	30	307	45	31	31,063	33	21
BUPRENORPHINE	9	23	15	38	23	14	6,215	24	15

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ix. Prescriber: Chandos Tackett

46. Dr. Chandos Tackett is licensed as a Family Practitioner[62] and is a physician at HIMG. Though his prescribing in early years was already above state and national averages, his prescribing increased to approximately 40,000 dosage units per month in 2008 – more than nine times the average West Virginia family/general practitioner, who was prescribing fewer than 5,000 dosage units per month.

Table 32 Prescriber Rank in County by Year
(IQVIA Xponent®: Cabell County, 1997-2017)
This table is sorted chronologically. Ranks are among all prescribers in Cabell County.

Year	Opioid Prescriptions	Prescriptions Rank	Within Specialty Prescriptions Rank	Opioid Dosage Units	Dosage Units Rank	Within Specialty Dosage Unit Rank	Dosage Units Per Prescription	Opioid MMEs	MMEs Rank	Within Specialty MMEs Rank	MMEs Per Prescription
1997	491	41	17	40,502	22	8	83	255,785	24	8	521
1998	608	37	12	44,146	22	6	73	481,031	18	5	791
1999	686	39	14	58,421	19	6	85	722,278	17	6	1,053
2000	731	37	12	63,079	20	6	86	944,358	20	6	1,292
2001	727	38	13	64,563	25	10	89	1,212,073	18	7	1,668
2002	1,092	27	11	94,468	22	10	86	1,796,280	12	5	1,645
2003	1,064	30	12	102,525	22	10	96	1,666,029	16	7	1,566
2004	1,263	31	14	128,017	23	9	101	2,463,412	12	5	1,950
2005	1,577	23	9	162,151	17	6	103	2,920,631	11	4	1,852
2006	1,777	21	8	185,070	14	6	104	3,164,365	11	5	1,781
2007	2,046	20	7	222,643	16	6	109	3,804,507	9	4	1,860
2008	2,009	19	8	218,467	13	6	109	3,566,584	10	5	1,775
2009	2,052	17	9	231,735	12	6	113	3,423,885	10	5	1,669
2010	2,185	14	8	234,046	13	7	107	3,512,620	10	5	1,608
2011	2,318	14	8	261,624	11	5	113	4,130,489	7	3	1,782
2012	2,620	9	5	296,875	8	5	113	5,003,470	5	2	1,910
2013	2,681	8	4	310,206	6	3	116	5,977,297	5	2	2,229
2014	2,587	8	4	306,484	7	3	118	5,913,062	7	3	2,286
2015	2,772	7	3	334,834	5	3	121	6,325,626	6	3	2,282
2016	2,483	8	4	302,340	4	2	122	5,652,410	5	2	2,277
2017	2,471	5	3	286,764	3	3	116	5,023,564	3	2	2,033
TOTAL	36,240	14	8	3,948,960	12	7	109	67,959,757	8	4	1,875

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[62] "Public License Search." West Virginia Board of Medicine, https://wvbom.wv.gov/public/search/index.asp.

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Figure 23 Prescriber Opioid Dosage Units Per Month Compared to Specialty Average
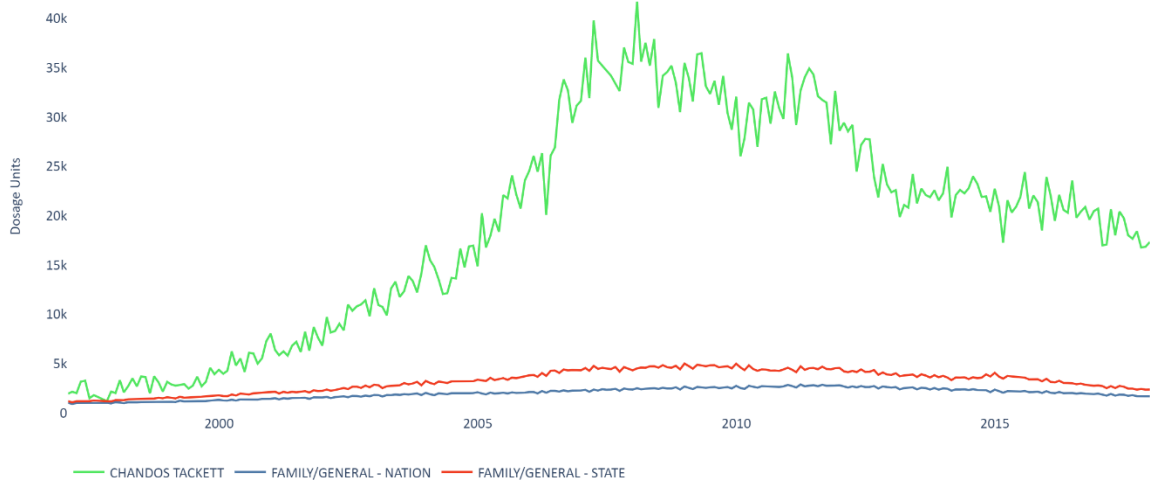(IQVIA Xponent®: Cabell County, 1997-2017)

Table 33 Opioid Prescriptions by Drug Name
(IQVIA Xponent®: Cabell County, 1997-2017)
This table is sorted by descending dosage units. Ranks are among all prescribers in Cabell County.

Drug Name	Opioid Prescriptions	Prescriptions Rank	Within Specialty Prescriptions Rank	Opioid Dosage Units	Dosage Units Rank	Within Specialty Dosage Unit Rank	Opioid MMEs	MMEs Rank	Within Specialty MMEs Rank
HYDROCODONE	44,123	7	3	4,131,405	6	3	31,230,847	5	3
OXYCODONE	4,264	34	14	376,371	25	13	5,664,454	29	17
CODEINE	2,394	14	7	170,254	12	6	922,120	12	8
METHADONE	1,062	4	1	82,613	10	3	2,458,416	11	3
MORPHINE	574	23	9	41,514	23	9	1,063,010	24	9
FENTANYL	1,403	9	4	17,151	9	4	5,994,028	10	5
HYDROMORPHONE	72	36	16	4,502	32	14	63,431	31	14
TAPENTADOL	28	24	13	2,298	17	11	56,369	22	13
MEPERIDINE	6	38	10	110	56	15	550	58	16
DIHYDROCODEINE	2	13	8	22	17	9	327	12	8
BUPRENORPHINE	4	33	22	16	36	25	1,142	38	25
OXYMORPHONE	1	78	52	9	115	66	199	114	66

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x.   Prescriber: Terrence Triplett

47. Dr. Terrence Triplett is licensed as an Internal Medicine specialist[63] and is a physician at HIMG. Like many others in his practice, his opioid prescribing was consistently above state and national averages for prescribers in his specialty during the IQVIA period. Triplett generally ranked in the top ten for opioid prescribing in Cabell County between 1997 and 2017. Although hydrocodone comprised most of his opioid prescriptions, he ranked second among Cabell family physicians for prescriptions of fentanyl.

Table 34 Prescriber Rank in County by Year
(IQVIA Xponent®: Cabell County, 1997-2017)
This table is sorted chronologically. Ranks are among all prescribers in Cabell County.

Year	Opioid Prescriptions	Prescriptions Rank	Within Specialty Prescriptions Rank	Opioid Dosage Units	Dosage Units Rank	Within Specialty Dosage Unit Rank	Dosage Units Per Prescription	Opioid MMEs	MMEs Rank	Within Specialty MMEs Rank	MMEs Per Prescription
1997	1,232	14	5	78,785	14	5	64	657,197	11	4	533
1998	1,443	15	4	106,100	11	4	74	860,379	13	4	596
1999	1,580	13	4	126,635	10	3	80	996,650	11	3	631
2000	1,758	11	3	142,549	9	3	81	1,288,738	14	4	733
2001	1,725	13	3	140,041	10	3	81	1,361,506	13	4	789
2002	2,040	11	3	183,136	9	3	90	1,990,767	11	4	976
2003	2,226	11	3	206,365	9	3	93	2,583,035	10	3	1,160
2004	2,455	11	3	242,404	9	3	99	2,847,264	10	3	1,160
2005	2,946	9	4	288,666	9	3	98	3,774,228	8	3	1,281
2006	2,862	10	4	286,292	10	4	100	3,409,745	9	3	1,191
2007	2,741	11	4	266,998	9	4	97	2,695,639	14	7	984
2008	2,792	9	4	270,397	10	5	97	3,220,790	12	6	1,153
2009	2,531	11	6	246,248	11	5	97	2,825,510	12	7	1,116
2010	2,280	13	7	238,871	11	5	105	2,428,055	16	10	1,065
2011	2,438	12	6	254,557	12	6	104	2,470,934	15	9	1,013
2012	2,269	13	8	235,923	12	7	104	2,148,377	17	12	947
2013	2,360	10	6	239,659	10	6	102	2,199,691	17	10	932
2014	2,103	16	10	214,318	11	7	102	1,915,090	22	14	911
2015	2,051	14	10	211,614	12	8	103	1,895,806	19	13	925
2016	1,956	12	8	196,422	9	7	100	1,719,997	18	12	879
2017	1,889	9	7	184,601	9	7	98	1,622,862	15	11	859
TOTAL	45,676	9	4	4,360,580	10	5	95	44,912,260	12	7	983

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[63] "Public License Search." West Virginia Board of Medicine, https://wvbom.wv.gov/public/search/index.asp.

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Figure 24 Prescriber Opioid Dosage Units Per Month Compared to Specialty Average
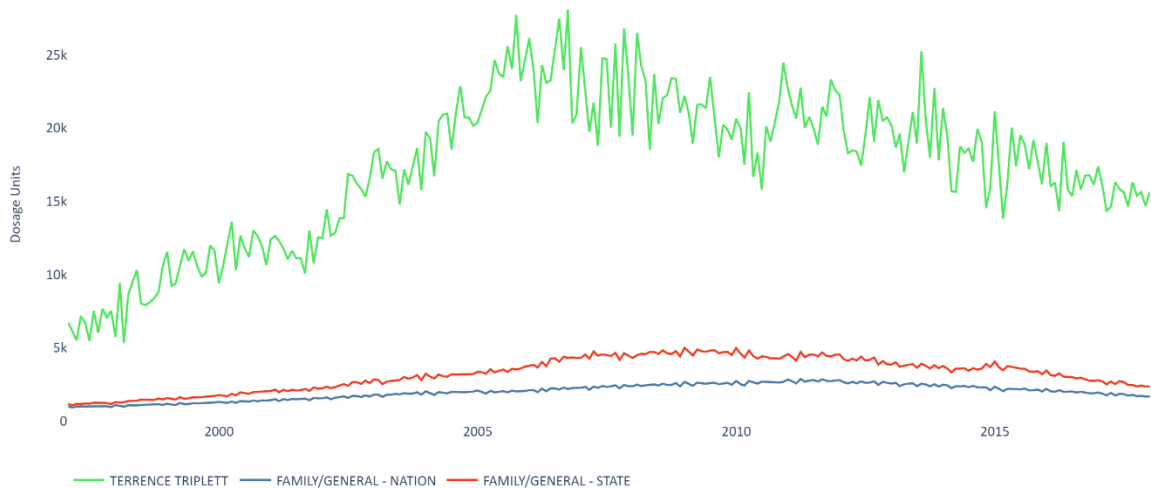(IQVIA Xponent®: Cabell County, 1997-2017)

Table 35 Opioid Prescriptions by Drug Name
(IQVIA Xponent®: Cabell County, 1997-2017)
This table is sorted by descending dosage units. Ranks are among all prescribers in Cabell County.

Drug Name	Opioid Prescriptions	Prescriptions Rank	Within Specialty Prescriptions Rank	Opioid Dosage Units	Dosage Units Rank	Within Specialty Dosage Unit Rank	Opioid MMEs	MMEs Rank	Within Specialty MMEs Rank
HYDROCODONE	33,450	8	4	3,233,502	9	4	21,955,659	11	6
OXYCODONE	5,701	23	8	504,829	22	12	8,371,528	22	14
CODEINE	3,293	5	3	301,022	3	3	1,919,262	4	3
MORPHINE	755	19	6	199,786	6	1	1,585,139	18	5
METHADONE	317	18	6	94,127	8	2	2,652,615	9	2
FENTANYL	2,038	7	2	20,512	6	2	8,319,229	6	2
TAPENTADOL	49	14	8	3,115	13	8	64,377	18	11
HYDROMORPHONE	46	44	19	2,615	45	22	32,271	46	21
DIHYDROCODEINE	15	3	2	956	4	4	7,170	1	1
OXYMORPHONE	1	78	52	81	79	48	1,219	99	59
BUPRENORPHINE	9	23	15	36	24	15	3,790	28	18

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Table 36 Opioid Prescriptions Filled at Drug Emporium by Drug Name
(Drug Emporium: 2012-2018)
This table is sorted by descending dosage units.

Drug Class	Total Prescriptions	% of Prescriptions	Opioid Dosage Units	% of Opioid Dosage Units	% Prescriptions Paid In Cash
ANALGESICS - OPIOID	359	14.1	47,333	11.4	9.2
ANTIHYPERLIPIDEMICS	176	6.9	39,140	9.5	3.4
ANTIHYPERTENSIVES	158	6.2	37,506	9.1	13.9
ANTIANXIETY	232	9.1	35,346	8.6	24.6
ANTIDIABETICS	104	4.1	30,518	7.4	15.4
BETA BLOCKERS	108	4.3	23,269	5.6	20.4
ANTIDEPRESSANTS	137	5.4	22,954	5.6	2.9
ULCER DRUGS	94	3.7	22,222	5.4	3.2
DIURETICS	102	4.0	17,655	4.3	13.7
LAXATIVES	19	0.7	16,174	3.9	15.8

xi.   Prescriber: Gregory Carico

48. Dr. Gregory Carico is a licensed Family Practice physician[64] and is a physician at HIMG. Throughout the IQVIA period, Carico consistently ranked within the top ten prescribers in his specialty in Cabell County. In most years of the IQVIA data, his opioid prescribing was higher than the average family/general practitioner in West Virginia and the nation – sometimes by more than 30,000 dosage units per month. According to an internal AmerisourceBergen document from April 2013, Carico was also a leading prescriber at the Walgreen store located at 111 4th Ave in Huntington, WV.[65] This document was dated four years before Carico's highest prescribing year in 2017, the last year of IQVIA data.

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[64] "Public License Search." West Virginia Board of Medicine, https://wvbom.wv.gov/public/search/index.asp.
[65] ABDCMDL00282553

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Table 37 Prescriber Rank in County by Year
(IQVIA Xponent®: Cabell County, 1997-2017)
This table is sorted chronologically. Ranks are among all prescribers in Cabell County.

Year	Opioid Prescriptions	Prescriptions Rank	Within Specialty Prescriptions Rank	Opioid Dosage Units	Dosage Units Rank	Within Specialty Dosage Unit Rank	Dosage Units Per Prescription	Opioid MMEs	MMEs Rank	Within Specialty MMEs Rank	MMEs Per Prescription
1997	398	55	20	26,863	31	12	67	226,673	29	11	569
1998	494	44	14	37,381	28	9	76	245,445	27	10	497
1999	941	24	6	66,640	18	5	71	746,134	16	5	793
2000	1,263	17	5	101,983	12	4	81	1,603,256	10	3	1,269
2001	1,583	14	4	123,353	13	4	78	1,880,056	9	3	1,188
2002	1,579	16	6	131,980	13	4	84	1,996,997	10	3	1,265
2003	2,012	14	4	186,303	13	4	93	2,556,962	12	4	1,271
2004	2,116	13	5	224,320	10	4	106	2,333,653	13	6	1,103
2005	2,363	13	5	272,965	11	4	116	2,819,847	12	5	1,193
2006	2,204	15	6	253,516	12	5	115	2,653,377	13	6	1,204
2007	2,214	18	6	264,528	11	5	119	2,911,231	13	6	1,315
2008	1,812	28	14	213,561	14	7	118	2,648,978	15	8	1,462
2009	1,944	18	10	218,641	13	7	112	2,685,470	15	9	1,381
2010	2,106	15	9	228,691	14	8	109	2,701,580	14	8	1,283
2011	2,113	17	10	218,878	13	7	104	2,407,668	16	10	1,139
2012	2,293	12	7	242,640	11	6	106	2,915,501	9	5	1,272
2013	2,320	11	7	249,419	8	5	107	2,824,984	8	4	1,217
2014	2,176	14	9	229,864	10	6	106	2,517,727	14	9	1,157
2015	2,149	13	9	230,008	10	6	107	2,896,302	10	6	1,348
2016	2,347	10	6	247,867	6	4	106	3,181,412	6	3	1,356
2017	2,982	4	2	314,361	2	2	105	3,722,438	4	3	1,248
TOTAL	39,409	12	7	4,083,763	11	6	104	48,475,693	10	5	1,230

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Figure 25 Prescriber Opioid Dosage Units Per Month Compared to Specialty Average
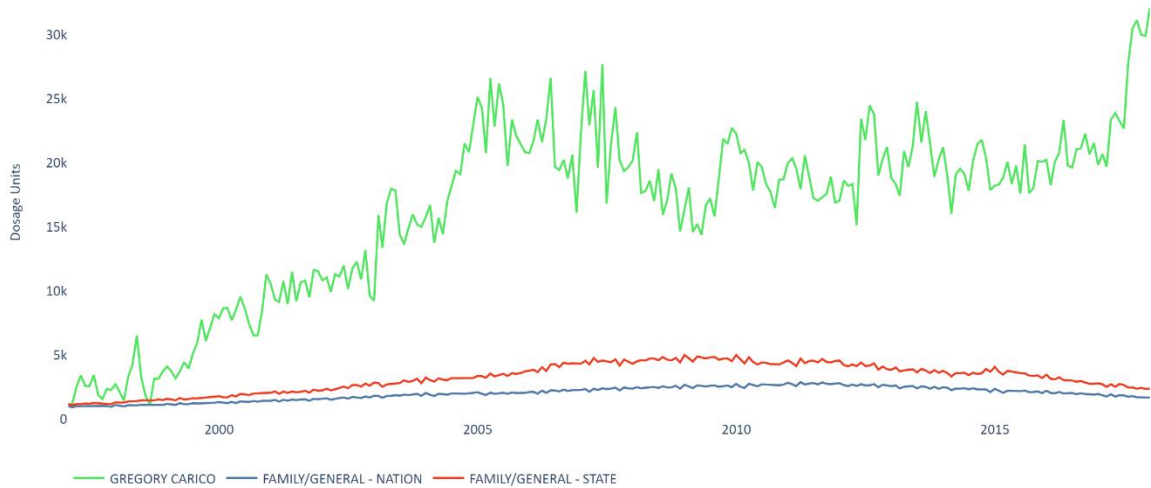(IQVIA Xponent®: Cabell County, 1997-2017)

Table 38 Opioid Prescriptions by Drug Name
(IQVIA Xponent®: Cabell County, 1997-2017)
This table is sorted by descending dosage units. Ranks are among all prescribers in Cabell County.

Drug Name	Opioid Prescriptions	Prescriptions Rank	Within Specialty Prescriptions Rank	Opioid Dosage Units	Dosage Units Rank	Within Specialty Dosage Unit Rank	Opioid MMEs	MMEs Rank	Within Specialty MMEs Rank
HYDROCODONE	27,345	12	6	2,817,976	11	6	22,254,403	10	5
OXYCODONE	7,699	13	5	938,019	10	5	18,977,974	10	5
CODEINE	2,586	10	5	218,318	7	4	1,040,435	10	6
METHADONE	443	14	5	51,858	17	6	1,522,807	17	6
MORPHINE	521	25	11	45,089	21	8	1,514,465	21	8
FENTANYL	711	20	13	7,267	21	14	2,789,514	22	15
OXYMORPHONE	46	21	11	2,952	22	12	338,686	14	6
HYDROMORPHONE	16	98	42	1,773	56	27	19,337	61	27
TAPENTADOL	5	51	23	368	42	22	7,367	51	24
BUPRENORPHINE	36	16	8	144	17	8	10,704	21	12

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xii.   Prescriber: Shawn Coffman

49. Shawn Coffman is licensed as an Internal Medicine specialist[66] and is a physician at HIMG. Coffman was among the five highest prescribers of opioids in Cabell County between 2015 and 2017 for dosage unitsand was consistently prescribing above state and national averages for his specialty.

Table 39 Prescriber Rank in County by Year
(IQVIA Xponent®: Cabell County, 1997-2017)
This table is sorted chronologically. Ranks are among all prescribers in Cabell County.

Year	Opioid Prescriptions	Prescriptions Rank	Within Specialty Prescriptions Rank	Opioid Dosage Units	Dosage Units Rank	Within Specialty Dosage Unit Rank	Dosage Units Per Prescription	Opioid MMEs	MMEs Rank	Within Specialty MMEs Rank	MMEs Per Prescription
1997	491	41	17	40,502	22	8	83	255,785	24	8	521
1998	608	37	12	44,146	22	6	73	481,031	18	5	791
1999	686	39	14	58,421	19	6	85	722,278	17	6	1,053
2000	731	37	12	63,079	20	6	86	944,358	20	6	1,292
2001	727	38	13	64,563	25	10	89	1,212,073	18	7	1,668
2002	1,092	27	11	94,468	22	10	86	1,796,280	12	5	1,645
2003	1,064	30	12	102,525	22	10	96	1,666,029	16	7	1,566
2004	1,263	31	14	128,017	23	9	101	2,463,412	12	5	1,950
2005	1,577	23	9	162,151	17	6	103	2,920,631	11	4	1,852
2006	1,777	21	8	185,070	14	6	104	3,164,365	11	5	1,781
2007	2,046	20	7	222,643	16	6	109	3,804,507	9	4	1,860
2008	2,009	19	8	218,467	13	6	109	3,566,584	10	5	1,775
2009	2,052	17	9	231,735	12	6	113	3,423,885	10	5	1,669
2010	2,185	14	8	234,046	13	7	107	3,512,620	10	5	1,608
2011	2,318	14	8	261,624	11	5	113	4,130,489	7	3	1,782
2012	2,620	9	5	296,875	8	5	113	5,003,470	5	2	1,910
2013	2,681	8	4	310,206	6	3	116	5,977,297	5	2	2,229
2014	2,587	8	4	306,484	7	3	118	5,913,062	7	3	2,286
2015	2,772	7	3	334,834	5	3	121	6,325,626	6	3	2,282
2016	2,483	8	4	302,340	4	2	122	5,652,410	5	2	2,277
2017	2,471	5	3	286,764	3	3	116	5,023,564	3	2	2,033
TOTAL	36,240	14	8	3,948,960	12	7	109	67,959,757	8	4	1,875

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[66] "Public License Search." West Virginia Board of Medicine, https://wvbom.wv.gov/public/search/index.asp.

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Figure 26 Prescriber Opioid Dosage Units Per Month Compared to Specialty Average
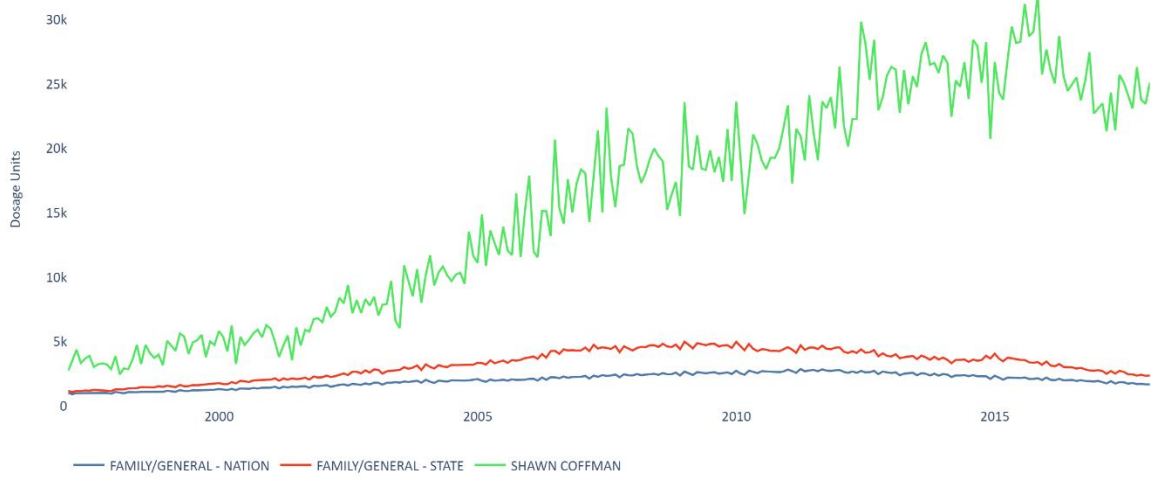(IQVIA Xponent®: Cabell County, 1997-2017)

Table 40 Opioid Prescriptions by Drug Name
(IQVIA Xponent®: Cabell County, 1997-2017)

This table is sorted by descending dosage units. Ranks are among all prescribers in Cabell County.

Drug Name	Opioid Prescriptions	Prescriptions Rank	Within Specialty Prescriptions Rank	Opioid Dosage Units	Dosage Units Rank	Within Specialty Dosage Unit Rank	Opioid MMEs	MMEs Rank	Within Specialty MMEs Rank
HYDROCODONE	20,764	25	12	2,182,600	13	7	17,462,877	15	9
OXYCODONE	11,517	8	3	1,478,195	8	3	40,041,354	6	2
CODEINE	2,110	19	10	199,313	9	5	1,496,498	7	4
METHADONE	107	35	18	31,477	21	9	939,308	23	11
TAPENTADOL	96	8	4	13,053	7	4	489,946	5	3
HYDROMORPHONE	197	14	4	12,071	17	6	277,440	12	3
MORPHINE	196	45	25	12,028	42	22	317,231	55	31
FENTANYL	1,106	13	6	11,931	13	6	6,431,368	9	4
OXYMORPHONE	121	11	4	8,185	11	4	488,478	11	4
BUPRENORPHINE	25	19	11	108	19	10	15,257	18	10

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Table 41 Opioid Prescriptions Filled at Drug Emporium by Drug Name
(Drug Emporium: 2012-2018)

This table is sorted by descending dosage units.

Drug Class	Total Prescriptions	% of Prescriptions	Opioid Dosage Units	% of Opioid Dosage Units	% Prescriptions Paid In Cash
ANALGESICS - OPIOID	576	16.0	90,788	15.7	7.1
ANTIANXIETY	255	7.1	60,435	10.4	11.8
ANTIHYPERTENSIVES	167	4.6	45,238	7.8	3.0
ANTIDEPRESSANTS	232	6.4	36,031	6.2	3.4
BETA BLOCKERS	133	3.7	32,452	5.6	0.8
ANTICONVULSANTS	108	3.0	31,543	5.4	1.9
ULCER DRUGS	187	5.2	30,639	5.3	5.3
ANTIHYPERLIPIDEMICS	130	3.6	22,872	4.0	3.1
DIURETICS	128	3.6	22,244	3.8	7.0
THYROID AGENTS	94	2.6	16,981	2.9	6.4

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VII.   Conclusion

50. Based on my analysis of IQVIA data, I conclude that Case Defendants had sufficient information to understand overall prescribing trends in Cabell County. Had they had reviewed this data, they would have seen that dosage units of opioids prescribed in Cabell County doubled in just five years (1997 to 2002) and quadrupled in twelve years (1997 to 2009). Defendants would have also seen that MMEs – the strength of the drugs – doubled in just three years (1997 to 2000) and increased seven-fold by 2010.

51. The over 200 million of opioid dosage units and over three billion MMEs prescribed in Cabell County during the IQVIA period outpaced Cabell County's approximately 95,000 residents. In the peak years, Cabell County physicians were prescribing enough opioids to give every man, woman, and child in Cabell County over 150 dosage units per year. Had Case Defendants reviewed IQVIA data, they would have seen that Cabell County prescriptions were generally double the statewide average and triple the national average dosage units per capita. They would have also seen that Cabell County was, at times, amongst the top 20 of the United States' more than 3,000 counties in terms of dosage units per capita. They also would have seen that Cabell County exceeded the prescribing levels in West Virginia, the leading state in the U.S. in terms of opioid dosage unit prescriptions per capita, where physicians prescribed over two billion opioids for its fewer than two million residents.

52. I further conclude that Case Defendants could have used IQVIA data and dispensing data to diligently monitor the prescribing activity of individual Cabell County prescribers. Had Case Defendants reviewed IQVIA data, they would have been able to identify by name prescribers exhibiting outlier prescribing activity based upon volume, dosage, and the composition of their prescriptions. The 1 percent of opioid prescribers – between five and nine prescribers – wrote upwards of 43% of all opioid dosage units and 65% of MMEs each year, totaling nearly 80 million dosage units and over 1.6 billion MMEs. In other words, a half dozen prescribers wrote enough opioid prescriptions to give every man, woman, and child in the county over 60 pills per year for several years between 2007 and 2011. Among these were prescribers like Deleno Webb, Anita Dawson, Philip Fisher, Gregory Chaney, and John Tiano – all of whom faced various disciplinary actions due to their prescribing activity. Furthermore, had Case Defendants also reviewed dispensing data available to them, as illustrated by the Drug Emporium dispensing data, the same outlier prescribers would have been apparent, not only for the quantity but also for the composition of their prescriptions. Among those was Deleno Webb, who wrote nearly 70% of his total prescriptions for opioids and most of the remaining prescriptions for antianxiety, antidepressant, anticonvulsant, and antipsychotic medications.

53. Furthermore, documents I reviewed indicate that some Case Defendants were, in fact, aware of certain prescribers described in the report, including Deleno Webb, David Caraway, Gregory Chaney, and Gregory Carico based information provided by their customers. I am informed by counsel that discovery in the case does not indicate that Case Defendants reported any of these prescribers or took action to limit shipments of opioids to fill their prescriptions.

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VIII.   Materials Reviewed

54. The following documents and data were considered for this analysis. The staff that worked under my direction had full and complete access to the documents and data produced in this case. The materials were as follows:

   a. IQVIA (formerly Quintiles and IMS Health, Inc.) Xponent® data produced to plaintiffs' counsel through bates numbers identified in the Methodology Section XI of this report for years 1997-2017;

   b. Drug Emporium dispensing data produced to plaintiff's counsel through bates numbers identified in the Methodology Section XI of this report for years January 1, 2012 to December 31, 2018;

   c. "National Drug type Dictionary," Drug Enforcement Administration, November 2018 (current version available at www.deadiversion.usdoj.gov/arcos/ndc/ndcfile.txt);

   d. "NDC Dictionary Instructions," Drug Enforcement Administration, October 2010 (current version available at www.deadiversion.usdoj.gov/arcos/ndc/readme.txt);

   e. "National Drug type Directory," U.S. Food & Drug Administration, January 2018 (current version available at https://www.fda.gov/drugs/informationondrugs/ucm142438.htm);

   f. "Opioid Oral Morphine Milligram Equivalent (MME) Conversion Factors," Centers for Disease Control and Prevention, August 2017 (current version available at www.cdc.gov/drugoverdose/resources/data.html);

   g. "NDC: Based On Drug Products in the Medicaid Drug Rebate Program," Centers for Medicare and Medicaid Services, April 2019 (current available at https://data.medicaid.gov/Drug-Pricing-and-Payment);

   h. "Geocoder," United States Census (current available at https://geocoding.geo.census.gov/geocoder);

   i. "Physician Specialty Codes," American Medical Association (current version available at http://cdn2.hubspot.net/hub/178504/file-2553042497-pdf/documents/AMA_Physician_Specialty_Codes.pdf?t=1425245957165)

   j. Other documents cited in the text and Considered Items;

IX.   Qualifications

55. I am the Managing Director for Data Mining & Analytics with Gryphon Strategies, Inc. I was hired to create and direct their data mining and analytics division. In my current role, I advise financial and law firms on leveraging data for investments and investigations.

56. Prior to founding Gryphon Strategies' Data Mining & Analytics division, I founded and directed the Research and Analytics Department for the New York State Office of the Attorney General (NYS OAG) from 2013 to 2017. As a result of my leadership, the NYS OAG became the first state office attorney general to hire a data scientist. I grew my staff from one research assistant to seven full-time staff.

57. I have also worked in various research and analytical positions, including the research department of the Service Employees International Union (SEIU) 32BJ, the largest property services union in the country. I was also a researcher for the Global Clearinghouse and a Teaching Assistant at the New School for Social Research. As a consultant, I have been hired by and have provided pro-bono assistance to many state and federal agencies as well as nonprofits on the use of data mining and analytics in investigations.

58. The work I have done throughout my career relates directly to analysis undertaken in this report. For over six years, I have employed a data-driven approach to identifying suspicious, sometimes illegal, conduct. I have developed a specialty in compiling and analyzing disorganized and disparate data. Since 2014, I have been immersed in issues and investigations related to the opioid crisis. This analysis drew upon my unique and specialized skillset that has been developed over a decade of research and analytical experience.

59. I was often tasked with identifying instances of wrongdoing by companies. For example, while at SEIU 32BJ, I reviewed public records for data to identify wrongdoing by cleaning companies and cleaning contractors around the country. For example, through thorough research and documentation, I was able to identify a cleaning company that was creating shell companies to keep a small business cleaning contract at the Walter Reed Medical Center. SEIU 32BJ submitted this information to the General Services Administration. To the best of my knowledge, that company or its subsidiaries/affiliates lost the contract for that site.

60. My primary directive when the NYS OAG's office hired me was to help the office identify areas for investigation using data. Frequently, I was given a subject area to investigate without having any prior expertise in the area. I would then educate myself through research and talking with subject matter experts to allow me to help them identify new areas of investigation. I often would use public data to assist with these investigations. For instance, I combined publicly available tax assessor, mortgage records, and real estate listings to identify hundreds of land owners potentially out of compliance with the city's 421-a tax benefit program that the NYS OAG investigated with various settlements with landlords.

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61. My work over the past decade has required me to extract, process, clean, merge, and analyze both public and confidential data, which often comes poorly formatted and from disparate locations. From these convoluted datasets, I have identified trends and outliers that have furthered investigations or prosecution.

62. For over four years, I have worked extensively on issues relevant to opioids. While at the NYS OAG, I developed and managed the Community Overdose Prevention (COP) Program to use data analytics to determine how best to deploy life-saving naloxone across law enforcement officers statewide. Under that program, I oversaw the collection of information related to naloxone disbursements, which jumpstarted tracking opioid overdoses more efficiently throughout the state. I used the data I collected, as well as external datasets, to deepen understanding of opioid usage in New York State.

63. I have written or co-authored numerous reports using my data analysis to advance a variety of investigations into illegal activity, many of which have been covered by national media outlets. For instance, my analysis published in a report issued by the NYS OAG helped reveal AirBnB's illegal activity in New York City. In addition, while at SEIU 32BJ, I authored two papers about the physical building conditions of New York City public school facilities, the second of which was widely covered by local news and prompted a city council oversight hearing to address the issues raised.

64. In my work, I have frequently received produced data in a format not initially conducive to analysis, such as productions containing PDF versions of spreadsheets or thousands of files of various formats not described in a volume of bates. In a case that settled for hundreds of millions of dollars, I supervised the team that identified and extracted information about shipments from the labeler defendant's production in that case. Because of this analysis, my team and I were able to detect millions of improper shipments made in New York State that were then used by NYS OAG attorneys in court and ultimately led to the judge ordering the labeler defendant in that case to pay almost $250 million in damages.

65. My experience also includes processing very disorganized data produced by defendants in various cases for investigations and prosecution. For a wage theft case brought by the NYS OAG, I was asked to identify instances of an employer "stealing time" from employees. To complete this analysis, I had to extract information from thousands of PDF employee time cards to extrapolate and identify instances of missing time. Based on my analysis, I determined that over $500,000 in owed money to employees.

66. In my work, I supervise complicated data management and analysis. For an NYS OAG investigation into posting fake trades in emerging market foreign exchange currency options, I used scripts to extract relevant trade information from two years of instant message, email, and voice communications between brokers. Working with my team, I then compared that relevant information from postings to the trade confirmations of actual completed trades brokered to determine which trades were real and which were fabricated. This analysis was relied upon to generate a criminal complaint filed by the NYS OAG. The firms ultimately pled guilty to one count of securities fraud.

67. I am also experienced in working with vast amounts of sensitive information. In developing the interactive dashboard on illegal gun trafficking in New York, the Attorney General's Office obtained the anonymized and the highly confidential firearms tracing data from the Bureau of Alcohol, Tobacco, Firearms and Explosives. My team and I were granted authorization from dozens of police departments to access their firearms trace data on their behalf. I transformed that data into an interactive tool used by New York State law enforcement agencies to identify potential firearms trafficking, based on analytics relevant to firearms trafficking. This data required considerable cleaning and analysis, including geocoding and entity resolution to identify the same firearm purchaser that relied on different aliases, addresses, and other biographical information to avoid detection.

68. I frequently am called upon to analyze very large data. While working on investigations of broadband internet investigations at the NYS OAG, I collected public speed test data and submissions to office made by the general public about the download speed. This preliminary analysis was the basis for opening an investigation into the practices of the largest broadband providers regarding the internet speeds of its customers. As part of this investigation, I drafted the data request to broadband providers for account and other relevant information that would impact a customer's internet speed. I connected several datasets totaling hundreds of millions of records, including the customer account data (what internet tier they were provisioned), the internet speed test results, as well as information about the modem/router configuration. The results of my analysis and the analysis that I supervised were used in the complaint the Attorney General filed against Time Warner Cable. The case ultimately settled for $174.2 million.

69. I received the NYS OAG's Innovation in Law Enforcement Award for my work on gun trafficking and twice received the NYS OAG's Superior Service Award.

70. I was a member of the 28th Class of Coro's Leadership New York and was part of City and State's 40 Under 40 Rising Stars in 2016. I serve on the Standards Review Council for the Multifamily Operating Standards Assessment & Improvement Council (MOSAIC) – a New York Benefit Corporation designed to establish fair and independent operating standards for quality of living within the multifamily housing market.

71. I hold a Master of Economics from the New School and a Bachelor of Business Administration from Washburn University.

72. I was deposed on June 13, 2019, after filing an expert analysis with the multidistrict litigation on April 15, 2019.

73. I was deposed on January 23, 2020, after filing an expert analysis for the Opioid Litigation, 400000/2017 Relating to Case Nos. County of Suffolk, 400001/2017; County of Nassau, 400008/2017; and New York State, 400016/2018.

74. I was deposed on March 6, 2020, after filing an expert analysis for the Tennessee Opioid Litigation.

75. I was an invited speaker at the following conferences:
a. Association of Certified Fraud Examiners (ACFE) Global Fraud Conference (2019, 2020)

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b. NASAA Investment Adviser Training (2017, 2019, 2020)
c. Association of Certified Fraud Examiners (ACFE) Law Enforcement and Government Anti-Fraud Summit (2018, 2019)
d. PLI Hedge Fund and Private Equity Enforcement & Regulatory Developments 2018 (2018)

76. My CV is attached as Exhibit 1.

X.   Remuneration

77. Gryphon is being compensated for its time and expenses. My hourly rate is $475 per hour. Other Gryphon personnel working on this matter have billing rates of $150 to $350 per hour.

XI.   Methodology

A. IQVIA Xponent®

78. I first received this data on or around February 1, 2019. I processed this data in my capacity as a plaintiff expert witness in re *National Prescription Opiate Litigation*, MDL No. 2804 Production Volume Number thirteen (ALLERGAN-MDL013) containing the following bates range: ALLERGAN_MDL_02167865 to ALLERGAN_MDL_02485011.[67]

79. The Xponent® Data as it was produced to me has several limitations, which if resolved would only strengthen the data. First, there is no NDC value provided with the listed products nor is there a crosswalk provided for NDC values and the proprietary IQVIA product codes, although the IQVIA documentation states that this is a possibility. Second, there is no NPI number nor is there a crosswalk that maps NPI values to the IMS identifiers. Third, filling pharmacy information is not provided with the data, even though this information is derived from pharmacy sales records. It is my understanding that other data products from IQVIA such as LRX do contain this information. Fourth, because the data is projected, IQVIA provides decimal numbers for prescriptions and dosage units, which can lead to differences in rounding depending on the level of aggregation of the data.

a.   Data Fields and Descriptions

80. There are 168 data files saved as compressed GZIP (.GZ) files. Combined, these files total approximately 27 GB compressed and include over 750 million rows, delimited by this character: ~. These files are formatted in four distinct schemas. Appendix A of this document details which files fall into which schema type and provides the approximate size of each file, compressed. Appendix B of this document details the columns found within each schema.

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[67] "In re National Prescription Opiate Litigation, MDL No. 2804." *Allergan Finance, LLC (f/k/a Actavis, Inc. f/k/a Watson Pharmaceuticals, Inc.),* August 10, 2018.

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81. The following are descriptions of the native columns in the IQVIA Xponent® data, based on values found in the data itself and the documentation entitled "MHJ IMS Xponent®."

   a. **Client Number**: Contains the value of '777'.
   b. **Report Number**: Contains values of '88' and '89'.
   c. **SRA 1 (renamed to sra1_presc_zip):** Prescriber zip code.
   d. **SRA 2 (renamed to sra2_md_ims_id)**: A seven-digit unique identifier assigned to prescribers. This is exclusively an internal IQVIA identifier. No crosswalk file allowing a connection to the National Provider Identifier (NPI) database[68] or other state licensing authorities has been made available in my experience with the dataset. The data contains nearly two million unique values (e.g., 0455029, 6600474, 0005100).
   e. **SRA 3 (renamed to sra3_md_specialty)**: A five-position prescriber specialty code (two-position source code and a three-position alpha specialty description) for the prescriber's practice specialty, "recorded by the American Medical Association (AMA) and confirmed by the physician."[69] The AMA specialty codes are available online.[70] Appendix C of this document details the codes and names for each value in this data using the AMA codes.
   f. **SRA 4 (renamed to sra4_unknown):** Per the "MHJ IMS Xponent®" documentation, this field should be blank. However, the dataset contains over 15,000 unique values (e.g., 7000160786, 0002870164) that correspond to the payor plan data, described below.
   g. **Sales Category:** A binary field where "1 = Retail Projected" and "2 = Mail Order Unprojected," according to the "MHJ Layout Xponent" document. Projected "converts sample data to estimates that represent data for the entire universe as defined by IMS" and unprojected is the "actual information/data collected; it is not altered."[71] Despite the MHJ Layout document, all NPA data (the source of the IQVIA Xponent® data) for retail, mail order, and long-term care data is projected, according to IQVIA documentation. [72, 73]
   h. **RX Type:** Per documentation, possible values for this field are "N- NRX / T -TRX / B- Both / (or Volume Units)," which translates to new prescriptions, total prescriptions, or both. This field is always populated with "B- Both" in the data.
   i. **Product Group Number:** An identification code for the drug product, stated as "Product Group Number (From DRM45 File)" in the "MHJ IMS Xponent®" documentation. This is exclusively an internal IQVIA identifier. No crosswalk file allowing for a connection to National Drug Code ("NDC") database or even to DEA base codes has been made available in my experience with the dataset. However, according to IQVIA documentation, identifying drugs with NDCs is an option made available to customers.[74]

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[68] U.S. Department of Health and Human Services, "NPPES NPI Registry." *Centers for Medicare and Medicaid,* https://npiregistry.cms.hhs.gov/

[69] "National Sales Perspectives & National Prescription Audit Overview." *IQVIA,* 2017;"IMS MVP Solutions User's Guide." *IQVIA*, 2012Q3

[70] Example sources: "Intended Use of AMA Physician Masterfile Codes for Self-Designation of Practice Specialties/Areas of Practice." *DMD Data*, March 2009, http://www.dmddata.com/2009_05_sdps.pdf; "AMA Physician Specialty Groups and Codes." *Hubspot*, http://cdn2.hubspot.net/hub/178504/file-2553042497-pdf/documents/AMA_Physician_Specialty_Codes.pdf?t=1425245957165; American Medical Association, "AMA Health Workforce Mapper User Manual." *Advocacy Resource Center*, 2016, https://www.ama-assn.org/sites/ama-assn.org/files/corp/media-browser/public/arc-public/ama-user-manual.pdf

[71] "National Sales Perspectives & National Prescription Audit Overview." *IQVIA*, 2017

[72] "National Sales Perspectives & National Prescription Audit Overview." *IQVIA*, 2017

[73]"IMS MVP Solutions User's Guide." *IQVIA*, 2012Q3

[74] "Monthly Data MHJ IMS XPONENT." *IQVIA.* No date; National Sales Perspectives & National Prescription Audit Overview." *IQVIA,* 2017

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j. **Filler:** This field is blank in all records.

k. **ME "Medical Education" Number / Source Code**: Per documentation, this field is a ten-digit alpha-numeric value. The data contains nearly two million unique values (e.g., 088576000, 0117507094, 320726200) which correspond to the sra2_md_ims_id. Some sra2_md_ims_id values will have multiple ME Number / Source code values.

l. **Prescriber Last Name, Prescriber First Name, Prescriber Middle Initial, Prescriber Street Address, Prescriber City, Prescriber State, Prescriber Zip Code:** Identifying information for the prescriber.

m. **Supplemental Data:** This field is blank and the "MHJ IMS Xponent®" documentation states it as "N/A" in the "actual information" column.

n. **Payor Plan:** "Provides insight into Managed Care's influence on prescription patterns in the United States" and includes information for Cash, Commercial Third Party, Medicaid and Medicare Part D payors.[75] The "MHJ IMS Xponent®" documentation states it as "N/A" in the "actual information" column; however, there are over 15,000 unique values for this field, which is null for all years prior to 2008.

o. **NDC Desc**: "MHJ IMS Xponent®" documentation states it as "N/A" and this field was not provided with the data.

p. **Data Date:** Represents the month covered by the first "data bucket." See "Data Buckets" below for further information. (e.g., 1998-12-31, 2000-12-31, 2002-12-31).

q. **Num Months of Data:** Corresponds to the number of months contained in the data – possible values include 16, 28, 48, and 96. Given that there are four categorical values of data – Total Prescriptions, New Prescriptions, Total Quantity, and New Quantity – this corresponds to each category having four months, seven months, twelve, and forty-eight months of data, respectively.

r. **Data Bucket Count:** Each record in the Xponent® data contains "data bucket" columns, which allows IQVIA to include several months of data (in this data, this means four months, seven months, twelve, and forty-eight months of data for each data category) into just one line. Each "data bucket" column represents a single month of data in one of four categories: Total Prescriptions, New Prescriptions, Total Quantity, and New Quantity. Bucket 1 is the newest data and bucket 24 is the oldest. Here is how the "MHJ IMS Xponent®" documentation describes the bucket count:

> *96 Monthly Data Buckets:*
> *Data Buckets 01 - 24 = New Rx*
> *Data Buckets 25 - 48 = Total Rx*
> *Data Buckets 49 - 72 = New Qty*
> *Data Buckets 73 - 96 = Total Qty*
> *(Bucket 1 = newest, 24 = oldest)*

  i. **Total Rx:** "Total amount of prescriptions written for a drug. This number is

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[75] "IMS MVP Solutions User's Guide." *IQVIA*, 2012Q3

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projected from the IMS US sample outlets to the US total. NRx+RRX=TRx"[76]

    ii. **New Rx:** "Total number of New Prescriptions written for a drug. New prescriptions represent the first time an Rx shows up at the dispensing outlet or chain." [77]

    iii. **Total Qty and New Qty:** Inferred to mean total and new dosage units.

    b.   Supplemental Data File

82. A supplemental file ("GPS_084_71_USC022_mkt_def_APR2018") contains information linking the "**Product Group Number**" to a product description, product group, dollar value, and manufacturer name. The following columns are in this data:

    a. **File Code:** Two-digit numeric value. Always populated as "71".

    b. **PG ("Product Group"):** Eight-digit numeric value representing the product group category of the data (e.g., "00000005" corresponds to "TY-TAB TAB #3 30MG, MAJOR PHARM"). This field contains 3,959 unique values.

    c. **PG NAME ("Product Group Name"):** Corresponds to the product group number above (e.g., "TY-TAB TAB #3 30MG, MAJOR PHARM" corresponds to "00000005"). This field contains 3,590 unique values.

    d. **Mfr. ("Manufacturer Code"):** Five-position numeric value representing the company that manufacturers or promotes a product (e.g., "00397" corresponds to "PURDUE PHARMA").[78] This value does not correspond to the Food and Drug Administration (FDA) Online Label Repository. In the FDA Online Label Repository, "00397" is not a valid labeler value.[79] This field contains over 300 unique values.[80]

    e. **Status:** A four-position alpha-numeric field of unspecified definition. This field contains 64 unique values (e.g., "TTIH", "R006", "IH").

    f. **CMF:** A ten-digit field generally corresponding to the product description (e.g., "1483130001" which corresponds to "OXYCONTIN II,TAB SA,80MG,25UD CARD 0107-25 (RX)"). This field contains over 4,600 unique values. This value does not correspond to the National Drug Code values. For example, "1483130001" is not a valid NDC code; instead Purdue's Oxycontin 80mg is sold under several NDC values,[81] according to the DEA's National Drug Code File.[82]

    g. **Product Description:** An alpha-numeric field corresponding to the product code (e.g., "OXYCONTIN II,TAB SA,80MG,25UD CARD 0107-25 (RX)" corresponds to "1483130001").

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[76] Ibid.

[77] Ibid.

[78] "IMS MVP Solutions User's Guide." *IQVIA*, 2012Q3

[79] National Library of Medicine – National Institutes of Mental Health, https://dailymed.nlm.nih.gov/dailymed/index.cfm

[80] FDA Online Label Repository." *Food and Drug Administration (FDA),* https://labels.fda.gov/.

[81] Examples include: 65505076020, 65505078730, 49999085730, 65505097330, 49999085790, 00591010720, 65505097828, 65505072720, 65505071430, 54868398600, 48692065325, 54868398602, 54868398605, 48692000525, 43063024430, 16590061786, 65505000525, 23490929109, 48692000510, 23490929103, 48692065304, 16590061730, 54868398601, 35356078930, 65505074620, 16590061772, 16590061790, 65505075328, 00591010710, 65505077730, 35356078990, 59011010720, 65505072120, 59011048010, 21695094160, 59011048020, 48692094850, 65505000510, 65505067128, 54868398604, 65505073420, 59011010725, 16590061760, 23490929106, 48692000520, 65899010730, 49999085700, 54868398603, 59011010710, 65899010760

[82] "ARCOS NDC Text File." U.S. Department of Justice, https://www.deadiversion.usdoj.gov/arcos/ndc/ndcfile.txt

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The description refers to the form description, strength description, and package size of a product manufactured by a given company. Note that "Tablets and capsules are shown as a single package unit … A bottle containing 500 capsules has a package size of One … A 10-pack of injectable vials has a package size of 10, and a dozen bottles of cough syrup has a package size of 12." [83] This field contains 4,400 unique values.

h. **Mfr ("Manufacturer") Name:** The manufacturer name of the product corresponding to the manufacturer number above (e.g., "PURDUE PHARMA" corresponds to "00397"). This field contains 311 unique values.

i. **Dollars:** Inferred to mean the same as "Retail Price of TRx, NRx, and RRx" which is the measures are the sum of the costs to the consumer for total, new or refill dispensed prescriptions."[84] This field is not populated for approximately 7% of the records in the file and there are sometimes multiple dollar values for some products (e.g., the product group "OXYCONTIN TAB SA 12HR 80MG, PURDUE PHARMA" had two values: "150.36" and "226.46" for the two different Product Descriptions). I have not used this field because there is no linkage to the IQVIA data and the data represented a snapshot in time; however, if provided additional historical pricing information I could utilize this field.

j. **USC ("Uniform System of Classification"):** A five-position numeric field using the system created by Quintiles/IMS to categorize pharmaceutical products in the U.S. based upon a "based on a hierarchy of diseases/ailments."[85] A USC 5 represents the finest product classification (i.e., "Erythromycin") and a USC2 is the most general (e.g., "Anti-Infective Systemic). [86] This field contains the following seven unique values: 2211, 2212, 2214, 2221, 2222, 2231, 2232.

83. Based upon the naming structure of the supplemental file, it appears to be produced/updated monthly. Despite multiple requests, the April 2018 snapshot of the supplemental file, the month prior to the IQVIA data's production to the MDL, is the only file provided to me. If additional files are provided to me, I reserve the right to amend this

c.   Additional Data Sources and Inference

84. To be able to analyze the IQVIA data in a manner consistent with other datasets being used in the National Opiate Litigation, such as the ARCOS data, I added the following information to the data:

a. **Drug Name:** The product description is used to identify the drug name for the prescribed drug product. For example, if the product description is "OXYCODONE/APAP,TAB,5MG,10 2164-10 (RX)", the drug name is identified as "OXYCODONE".

b. **Active Numerator Strength (Drug Strength):** The product description is used to determine the "active numerator strength" of the drug product, which describes the number of milligrams in each dosage unit (e.g. milligrams of oxycodone per pill). For example, if the product description is "OXYCODONE/APAP,TAB,5MG,10 2164-10 (RX)", the active numerator strength is identified as "5". Drugs with an Active Numerator

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[83] "National Sales Perspectives & National Prescription Audit Overview." *IQVIA*, 2017; "IMS MVP Solutions User's Guide." IQVIA, 2012Q3
[84] Ibid.
[85] "National Sales Perspectives & National Prescription Audit Overview." *IQVIA*, 2017; "IMS MVP Solutions User's Guide." IQVIA, 2012Q3
[86] "National Sales Perspectives & National Prescription Audit Overview." *IQVIA*, 2017

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> Strength provided in micrograms are converted to milligrams by dividing by 1,000. For example, the Active Numerator Strength for "FENTANYL,PATCH,25MCG/HR,5 0402-05 (RX)" is rendered 0.025.

c. **Labeler Name Parent:** The manufacturer name provided is grouped as necessary to make it consistent with names as used in other datasets and to denote it as the parent entity. The following entities are grouped:

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Table 42: Manufacturer Groupings and Parent Companies

Labeler Name Parent	Manufacturer Name
CADILA HEALTH	ZYDUS PHARM
ENDO INTERNATIONAL	ENDO GENERIC PROD
ENDO INTERNATIONAL	ENDO LABS
ENDO INTERNATIONAL	PAR PHARM
ENDO INTERNATIONAL	VINTAGE PHARM
JOHNSON AND JOHNSON PHARMACEUTICALS	JANSSEN PHARM
JOHNSON AND JOHNSON PHARMACEUTICALS	MCNEIL PHARM
LAKE ERIE MEDICAL	QUALITY CARE PRODS
MCKESSON CORPORATION	MCKESSON LABS
MCKESSON CORPORATION	MCKESSON PKG SERV
MYLAN PHARMACEUTICALS	MYLAN
MYLAN PHARMACEUTICALS	MYLAN BERTEK
MYLAN PHARMACEUTICALS	MYLAN INSTITUTION
MYLAN PHARMACEUTICALS	MYLAN SPECIALTY
NOVARTIS PHARMACEUTICALS CORP	NOVARTIS CONS HLTH
NOVARTIS PHARMACEUTICALS CORP	NOVARTIS RX
PFIZER INC	MAYNE PHARMA
PFIZER INC	PARMED PHARM
PFIZER INC	PFIZER
PURDUE PHARMA	RHODES PHARM
TEVA PHARMACEUTICALS	INWOOD LABS
TEVA PHARMACEUTICALS	IVAX LABS
TEVA PHARMACEUTICALS	ROYCE LABS
TEVA PHARMACEUTICALS	TEVA CNS
TEVA PHARMACEUTICALS	TEVA PARENTERAL MED

d. **Morphine Milligram Equivalent ("MME") Conversion Factor:** The Centers for Disease Control and Prevention ("CDC") publishes "Opioid Oral Morphine Milligram Equivalent ("MME") Conversion Factors" that allow for comparison of opioids drugs to one another by the dosage strengths.[87] In the case of patches, the CDC provides MME Conversion Factor for Active Numerator Strength measured in micrograms, rather than in milligrams. Since Active Numerator Strength is standardized in milligrams, I converted the MME Conversion Factor accordingly. The table below identifies the conversion factors used for each product.

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[87] "Opioid Oral Morphine Milligram Equivalent (MME) Conversion Factors." *Center for Medicare and Medicaid Services*, August 2017 https://www.cms.gov/Medicare/Prescription-Drug-coverage/PrescriptionDrugCovContra/Downloads/Opioid-Morphine-EQ-Conversion-Factors-Aug-2017.pdf

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Table 43: Morphine Milligram Equivalent ("MME") Conversion Factors

Drug Name	MME Conversion Factor
Buprenorphine – Patches	12.6 (x 1,000)[88]
Buprenorphine – Film/Tablet	30
Codeine	0.15
Dihydrocodeine	0.25
Fentanyl – Patches	7.2 (x 1,000)[89]
Fentanyl – Parenteral	100
Fentanyl – Buccal, sublingual tablets, lozenge/troche	130
Fentanyl – nasal spray	160
Fentanyl – film or oral spray	180
Hydrocodone	1
Hydromorphone	4
Levorphanol	11
Meperidine	0.10
Methadone	3
Morphine	1
Oxycodone	1.5
Oxymorphone	3
Tapentadol	0.40

e. **MMEs:** Morphine milligram equivalents are added based upon the below formula, based on active numerator strength, number of doses, and MME conversion factor. The CDC offers a formula for MME conversion that includes the number of days' supply to calculate MME per day. To remain consistent for all pill-based and patch-based drugs, calculations are made on a per-unit basis. For example, while the CDC breaks down the MME calculation for a 7-day patch into MME per day, I include all seven days' supply in one figure to yield MMEs per patch. MMEs are calculated using the labeled drug strength (e.g., 80 mg), not the actual weight of the controlled substance within the product, which is typically less than the labeled value.

MMEs = active numerator strength x doses x MME conversion factor

f. **Medical Specialty Grouping:** After assigning the appropriate (AMA) specialization title, I group the specialties into larger groupings for purposes of compliance metric application. See Appendix C for details.

g. **Prescriber County**: Although most are contained within a single county, zip codes can

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[88] 12.6 micrograms per patch = 12,600 milligrams per patch.
[89] 7.2 micrograms per patch = 7,200 milligrams per patch.

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cross county lines, which required me to add the county name for the location of each prescriber to the data via a two-step process. The first step was to assign county names to all prescribers with zip codes that are only associated with one county. In the second step, all prescriber addresses with a zip code associated with more than one county name were put through the United State Census geocoder application programming interface (API).[90] The API returned the county Federal Information Processing Standards (FIPS) code for each address.

d.   Xponent® Data Reshaping

85. To allow values to be analyzed (e.g., totals, averages), the IQVIA Xponent® data was pivoted such that values that represented as columns were then transposed to rows. For example, here is an excerpt of the raw data for prescriber "956690" starting on 12/31/2000.

Table 44: Original IQVIA Xponent® Layout

sra2_md_ims_id	data_date	num_months_of_data	total_rx_1_month	total_rx_2_month	total_rx_3_month	total_rx_4_month	total_rx_5_month	total_rx_6_month
956690	12/31/2000	96	4.96	2.15	2.18	2.57	3.4	3.69

86. The data is reshaped as follows, so that each total_rx value becomes its own row. As stated above in **Data Bucket Count,** month 24 is the oldest data and month 1 is the current month data. As such, total_rx_1_month stays 12/31/2000, total_rx_2_month becomes 11/30/2000, total_rx_3_month becomes 10/31/2000, total_rx_4_month becomes 9/30/2000, total_rx_5_month becomes 8/31/2000, and total_rx_6_month becomes 7/31/2000 for the schema with 96 months of data (24 months for each metric).

Table 45: Reshaped IQVIA Xponent® Layout

sra2_md_ims_id	data_date	num_months_of_data	total_prescriptions
956690	12/31/2000	96	4.96
956690	11/30/2000	96	2.15
956690	10/31/2000	96	2.18
956690	9/30/2000	96	2.57
956690	8/31/2000	96	3.4
956690	7/31/2000	96	3.69

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[90] "Welcome to Geocoder." *United States Census.* https://geocoding.geo.census.gov/

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B. Drug Emporium Dispensing Data

87. The Drug Emporium data was received on or about June 3rd, 2020 in the following bates range: DE0034480- DE0034486.

88. The data contained dispensing records for Discount Emporium #1, located at 3 Mall Road in Barboursville, WV (Cabell County), and included the following columns:

   Date Written, Date, Rx Number, Quan., Day Supply, Last Insurance Paid, Drug, Thera. Class, Doctor DEA, Sched, Doctor

89. The "Date" field was interpreted as the date the prescription was dispensed because there was a separate "Date Written" field, and "Quan." was interpreted as the number of dosage units.

90. There were seven rows in the data that did not contain any information except RX Number, which dropped from the data and not included in the analysis.

91. The Drug Emporium data did not contain geographic information for prescribers (i.e., prescriber address, county, state, etc.). Geographic data was added using ARCOS and IQVIA datasets through two steps. First, "Doctor DEA" was used to join in ARCOS prescriber names and location information. Only "Doctor DEAs" that were associated with a single prescriber in the Drug Emporium data were used, as those connected with multiple prescribers would potentially yield incorrect address associations. The second step was to merge in IQVIA location information via prescriber names. The prescriber names included in the Drug Emporium data needed cleaning before adding IQVIA data. Name cleaning involved, for example, removing title information (i.e., RN) and middle initials. IQVIA location data was then added to the Drug Emporium data using names associated with only one location in the Discount Emporium data. If a geographic information was found for a prescriber in both the ARCOS and IQVIA datasets, the ARCOS information was used.

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C. United States Census Data

92. I obtained and processed population information from the U.S. Census Bureau for the United States, which included all states and counties, to calculate per capita averages.

93. National population was downloaded from the following sources:

   a. 1997 – 1999: https://www.census.gov/population/estimates/state/st-99-7.txt
   b. 2000 – 2009: https://www2.census.gov/programs-surveys/popest/datasets/2000-2010/intercensal/state/st-est00int-alldata.csv
   c. 2010 – 2017: https://www2.census.gov/programs-surveys/popest/datasets/2010-2017/national/asrh/nc-est2017-agesex-res.csv

94. National population files were processed using the following steps:

   a. For years between 1997 and 1999, I used the table titled "Population" from the "st-99-7.txt" file to determine the national population for each year.

   b. For years between 2000 and 2009, I used the data in the "st-est00int-alldata.csv" file listed above to determine the population for each year.

   c. There were two population figures available for 2000. I used the "POPESTIMATE2000" field for consistency with population estimates for other years. There were two population figures listed for 2010 in this file, but I obtained 2010 population from the file containing 2010 to 2017 data.

   d. For years between 2010 and 2017, I used the data in the "nc-est2017-agesex-res.csv" file listed above to determine the population for each year. There were three population figures available for 2010. I used the "POPESTIMATE2010" field for consistency with population estimates for other years.

95. State population was downloaded from the following sources:

   a. 1997 – 1999: https://www.census.gov/population/estimates/state/st-99-7.txt
   b. 2000 – 2009: https://www2.census.gov/programs-surveys/popest/datasets/2000-2010/intercensal/state/st-est00int-alldata.csv
   c. 2010 – 2017: https://www2.census.gov/programs-surveys/popest/datasets/2010-2017/state/asrh/sc-est2017-alldata5.csv

96. State population files were processed using the following steps:

   a. For years between 1997 and 1999, I used This table titled "Population" from the "st-99-7.txt" file to determine each state's population for each year.

   b. For years between 2000 and 2009, I used the data in the "st-est00int-alldata.csv" file listed above to determine each state's population for each year.

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  c. There were two population figures available for 2000, and I used the "POPESTIMATE2000" field for consistency with population estimates for other years. There were two population figures listed for 2010 in this file, but I obtained 2010 population from the file containing 2010 to 2017 data.

  d. For years between 2010 and 2017, I used the data in the "sc-est2017-alldata5.csv" file listed above to determine the population for each year. There were three population figures available for 2010. I used the "POPESTIMATE2010" field for consistency with population estimates for other years.

97. County population was downloaded from the following sources:

  a. 1997-1999: https://www2.census.gov/programs-surveys/popest/datasets/1990-2000/counties/asrh/co-99-10.txt

  b. 2000 – 2009: https://www2.census.gov/programs-surveys/popest/datasets/2000-2010/intercensal/county/co-est00int-agesex-5yr.csv

  c. 2010 – 2017: https://www2.census.gov/programs-surveys/popest/datasets/2010-2017/counties/asrh/cc-est2017-alldata.csv

98. County population files were processed using the following steps:

  a. For years between 1997 and 1999 I used the data in the "co-99-10.txt" file listed above to determine county population for each year. I summed across the eight columns for non-Hispanic and Hispanic population to get total population.

  b. For years between 2000 and 2009, I used the data in the "co-est00int-agesex-5yr.csv" file listed above to determine county population for each year. There were two population figures available for 2000. I used the "POPESTIMATE2000" field for consistency with population estimates for other years. There were two population figures listed for 2010 in this file, but I obtained 2010 population from the file containing 2010 to 2017 data.

  c. For years between 2010 and 2017, I used the data in the "cc-est2017-alldata.csv" file listed above to determine the population for each year. There were three "YEAR" codes that corresponded to 2010. I used code 3 (7/1/2010 population estimate) for consistency with population estimates for other years.

  d. Several counties changed names, were added, or were removed between 1997 and 2017. I used information from the census about these changes (https://www.census.gov/geo/reference/county-changes.html) to update population data as necessary.

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Under penalty of perjury, I declare that I have read the foregoing and that the facts alleged therein are true and correct to the best of my knowledge and belief.

Date: August 3, 2020   */s/ Lacey R. Keller*

                                                                                  Lacey R. Keller

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XII.   Exhibit 1 – Lacey Keller Resume

LACEY R.KELLER

New York, NY laceykeller.com
(917) 238-0599 lacey.keller@gmail.com

EXPERIENCE

Managing Director
Gryphon Strategies
New York, NY (Nov. 2017 – Present)
– Lead the development of Gryphon Strategies' newest business offering - Data Mining & Analytics that will support due diligence cases, fraud investigations, and litigation engagements.
– Find and attract new business opportunities, including engaging with potential clients, developing marketing materials, and curating web-based and social media content.
– Develop business intelligence strategies and systems for operations and human resources management.

Director of Research & Analytics
New York State Office of the Attorney General
New York, NY (Oct. 2013 – Nov. 2017)
– Built the Attorney General's Research & Analytics department – growing from one research assistant to seven full-time staff – including making the New York Attorney General the first in the country to employ a data scientist. This team supports the office's major initiatives and investigations through open source intelligence research, big data analysis, and data science techniques.
– Managed the redesign and relaunch of the Attorney General's open data and transparency website, NYOpengovernment.com.
– Co-developed the first-of-its-kind report and interactive dashboard on illegal gun trafficking in New York, which was the cover story of the Daily News.
– Provided analysis for the lawsuit against Spectrum-Time Warner Cable and Charter Communications for allegedly defrauding New Yorkers over internet speeds and performance, which was the cover story of the Daily News.
– Co-authored and provided the analysis for the report on illegal Airbnb rental activity in New York City, which was a cover story in the New York Times.
– Developed and managed two multi-million dollar programs that provided naloxone and bulletproof vests for New York State law enforcement.
– Presented at national conferences, local events, and office-wide trainings on using open source intelligence and data to support investigations.
– Cultivated partnerships with universities and technology start-ups to enhance the office's technological capacity, including projects to identify illegal drug dealers on social media, developing metrics to identify bad-actor landlords, and finding social media posts about consumer fraud by training a model based on complaints submitted to the office.

Lead Researcher
Previous Positions: Research Analyst, Researcher, and Intern
Service Employees International Union 32BJ
New York, NY (Jun. 2010 - Oct. 2013)
– Led a team of researchers that supported the union's collective bargaining and new member organizing efforts in several major East Coast markets.
– Developed and executed strategic corporate campaigns by identifying appropriate tactics, relevant research, and necessary resources; significant wins include defeating Delaware's largest non-union janitorial contractor and unionizing janitorial companies at the National Naval Medical Center.
– Authored and managed the release of two papers about the conditions of New York City public school facilities, the second of which was widely covered by local news and prompted a city council oversight hearing.
– Developed union density analysis, market research, contract cost scenarios, and dossiers that included financial, legal, political, and other public information.

EDUCATION

Masters of Arts– Economics
The New School for Social Research
New York, NY (2010)

Bachelor of Business Administration– Economics
Washburn University
Topeka, KS (2008)
Summa Cum Laude; University and School of Business Honors; Leadership Studies Certificate

Certificate in Data Science
General Assembly
New York, NY (2015)

HONORS

– Coro Leadership New York (2017)
– City & State's 40 Under 40 (2016)
– New York State Office of the Attorney General's Innovation in Law Enforcement Award (2016)
– New York State Office of the Attorney General's Superior Service Award (2014, 2015)

SKILLS

Adobe Creative Suite; Amazon Web Services (S3, Redshift); Git; Python; SQL; Tableau; Qlik

OTHER EXPERIENCE

Senior Researcher
The Global Clearinghouse
New York, NY (Feb. 2009 - Apr. 2010)

Teaching Assistant
The New School for Social Research
New York, NY (Aug. 2009 - Dec. 2009)

Assistant to Operations Director
Kathleen Sebelius for Kansas Governor
Topeka, KS (Jan. 2006 - Dec. 2006)

Assistant Campaign Manager
Tiffany Muller for Topeka City Council
Topeka, KS (Feb. 2005 - Apr. 2005)

Field Area Organizer
Nancy Boyda for U.S. Congress
Topeka, KS (May 2004 - Aug. 2004)

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XIII.   Exhibit 2 – IQVIA Xponent® File Names, Size, and Schema Types

Name	Size	Schema
CDS.ZWKT.ALLERGAN.XPO.F1.M04.001.GZ	298.6 MB	118_cols
CDS.ZWKT.ALLERGAN.XPO.F1.M04.002.GZ	279.0 MB	118_cols
CDS.ZWKT.ALLERGAN.XPO.F1.M04.003.GZ	247.0 MB	118_cols
CDS.ZWKT.ALLERGAN.XPO.F2.M04.001.GZ	304.9 MB	118_cols
CDS.ZWKT.ALLERGAN.XPO.F2.M04.002.GZ	287.2 MB	118_cols
CDS.ZWKT.ALLERGAN.XPO.F2.M04.003.GZ	267.4 MB	118_cols
CDS.ZWKT.ALLERGAN.XPO.F2.M04.004.GZ	24.8 MB	118_cols
CDS.ZWKT.ALLERGAN.XPO.F3.M04.001.GZ	295.8 MB	118_cols
CDS.ZWKT.ALLERGAN.XPO.F3.M04.002.GZ	283.8 MB	118_cols
CDS.ZWKT.ALLERGAN.XPO.F3.M04.003.GZ	270.5 MB	118_cols
CDS.ZWKT.ALLERGAN.XPO.F3.M04.004.GZ	125.1 MB	118_cols
CDS.ZWKT.ALLERGAN.XPO.F4.M04.001.GZ	291.1 MB	118_cols
CDS.ZWKT.ALLERGAN.XPO.F4.M04.002.GZ	280.4 MB	118_cols
CDS.ZWKT.ALLERGAN.XPO.F4.M04.003.GZ	268.3 MB	118_cols
CDS.ZWKT.ALLERGAN.XPO.F4.M04.004.GZ	242.6 MB	118_cols
CDS.ZWKT.ALLERGAN.XPO.F5.M04.001.GZ	274.5 MB	118_cols
CDS.ZWKT.ALLERGAN.XPO.F5.M04.002.GZ	265.6 MB	118_cols
CDS.ZWKT.ALLERGAN.XPO.F5.M04.003.GZ	256.4 MB	118_cols
CDS.ZWKT.ALLERGAN.XPO.F5.M04.004.GZ	246.0 MB	118_cols
CDS.ZWKT.ALLERGAN.XPO.F5.M04.005.GZ	107.7 MB	118_cols
CDS.ZWKT1.ALLERGAN.XPO.F1.M07.001.GZ	17.3 MB	118_cols
CDS.ZWKT1.ALLERGAN.XPO.F2.M07.001.GZ	18.4 MB	118_cols
CDS.ZWKT1.ALLERGAN.XPO.F3.M07.001.GZ	17.7 MB	118_cols
CDS.ZWKT1.ALLERGAN.XPO.F4.M07.001.GZ	16.8 MB	118_cols
CDS.ZWKT1.ALLERGAN.XPO.F5.M07.001.GZ	18.6 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F1.M04.001.GZ	167.7 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F1.M04.002.GZ	164.9 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F1.M04.003.GZ	171.9 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F1.M04.004.GZ	168.0 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F1.M04.005.GZ	172.8 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F1.M04.006.GZ	169.6 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F1.M04.007.GZ	171.7 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F1.M04.008.GZ	165.3 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F1.M04.009.GZ	175.6 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F1.M04.010.GZ	180.8 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F1.M04.011.GZ	176.3 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F1.M04.012.GZ	174.8 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F1.M04.013.GZ	173.9 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F1.M04.014.GZ	174.7 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F1.M04.015.GZ	178.6 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F1.M04.016.GZ	183.2 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F1.M04.017.GZ	183.1 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F1.M04.018.GZ	167.6 MB	118_cols

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CDS.ZWKW.ALLERGAN.XPOPLAN.F1.M04.019.GZ	171.8 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F1.M04.020.GZ	175.8 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F1.M04.021.GZ	174.9 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F1.M04.022.GZ	72.4 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F2.M04.001.GZ	163.7 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F2.M04.002.GZ	161.1 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F2.M04.003.GZ	165.9 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F2.M04.004.GZ	166.2 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F2.M04.005.GZ	160.4 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F2.M04.006.GZ	171.0 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F2.M04.007.GZ	170.1 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F2.M04.008.GZ	170.8 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F2.M04.009.GZ	167.7 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F2.M04.010.GZ	176.4 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F2.M04.011.GZ	177.0 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F2.M04.012.GZ	171.3 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F2.M04.013.GZ	171.6 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F2.M04.014.GZ	172.3 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F2.M04.015.GZ	172.1 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F2.M04.016.GZ	178.1 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F2.M04.017.GZ	180.5 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F2.M04.018.GZ	180.8 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F2.M04.019.GZ	170.0 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F2.M04.020.GZ	166.1 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F2.M04.021.GZ	169.2 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F2.M04.022.GZ	175.8 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F2.M04.023.GZ	168.1 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F2.M04.024.GZ	13.1 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F3.M04.001.GZ	154.9 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F3.M04.002.GZ	155.1 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F3.M04.003.GZ	155.9 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F3.M04.004.GZ	155.8 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F3.M04.005.GZ	155.7 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F3.M04.006.GZ	149.0 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F3.M04.007.GZ	159.3 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F3.M04.008.GZ	158.0 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F3.M04.009.GZ	160.3 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F3.M04.010.GZ	161.3 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F3.M04.011.GZ	164.7 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F3.M04.012.GZ	163.1 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F3.M04.013.GZ	163.8 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F3.M04.014.GZ	157.5 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F3.M04.015.GZ	157.5 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F3.M04.016.GZ	164.8 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F3.M04.017.GZ	159.9 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F3.M04.018.GZ	159.3 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F3.M04.019.GZ	165.1 MB	118_cols

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CDS.ZWKW.ALLERGAN.XPOPLAN.F3.M04.020.GZ	162.5 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F3.M04.021.GZ	162.7 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F3.M04.022.GZ	165.2 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F3.M04.023.GZ	157.4 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F3.M04.024.GZ	150.9 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F3.M04.025.GZ	155.3 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F3.M04.026.GZ	158.7 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F3.M04.027.GZ	164.3 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F3.M04.028.GZ	157.4 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F3.M04.029.GZ	82.6 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F4.M04.001.GZ	148.8 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F4.M04.002.GZ	149.4 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F4.M04.003.GZ	150.3 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F4.M04.004.GZ	147.7 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F4.M04.005.GZ	148.5 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F4.M04.006.GZ	142.4 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F4.M04.007.GZ	150.6 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F4.M04.008.GZ	151.7 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F4.M04.009.GZ	152.0 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F4.M04.010.GZ	154.5 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F4.M04.011.GZ	157.2 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F4.M04.012.GZ	154.0 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F4.M04.013.GZ	154.3 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F4.M04.014.GZ	147.4 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F4.M04.015.GZ	148.9 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F4.M04.016.GZ	152.8 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F4.M04.017.GZ	152.8 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F4.M04.018.GZ	151.1 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F4.M04.019.GZ	154.9 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F4.M04.020.GZ	152.7 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F4.M04.021.GZ	153.2 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F4.M04.022.GZ	152.7 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F4.M04.023.GZ	152.3 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F4.M04.024.GZ	146.0 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F4.M04.025.GZ	144.6 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F4.M04.026.GZ	149.3 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F4.M04.027.GZ	152.1 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F4.M04.028.GZ	153.0 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F4.M04.029.GZ	137.1 MB	118_cols
CDS.ZWKW1.ALLERGAN.XPOPLAN.F1.M07.001.GZ	77.8 MB	118_cols
CDS.ZWKW1.ALLERGAN.XPOPLAN.F2.M07.001.GZ	100.1 MB	118_cols
CDS.ZWKW1.ALLERGAN.XPOPLAN.F3.M07.001.GZ	132.3 MB	118_cols
CDS.ZWKW1.ALLERGAN.XPOPLAN.F4.M07.001.GZ	133.5 MB	118_cols
NRX.GR57E20H.C777R88.D3.001.GZ	163.5 MB	118_cols
NRX.GR57E20H.C777R88.D3.002.GZ	161.8 MB	118_cols
NRX.GR57E20H.C777R88.D3.003.GZ	160.5 MB	118_cols
NRX.GR57E20H.C777R88.D3.004.GZ	153.8 MB	118_cols

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NRX.GR57E20H.C777R88.D3.005.GZ	153.1 MB	118_cols
NRX.GR57E20H.C777R88.D3.006.GZ	149.1 MB	118_cols
NRX.GR57E20H.C777R88.D3.007.GZ	155.1 MB	118_cols
NRX.GR57E20H.C777R88.D3.008.GZ	158.0 MB	118_cols
NRX.GR57E20H.C777R88.D3.009.GZ	155.0 MB	118_cols
NRX.GR57E20H.C777R88.D3.010.GZ	153.1 MB	118_cols
NRX.GR57E20H.C777R88.D3.011.GZ	154.3 MB	118_cols
NRX.GR57E20H.C777R88.D3.012.GZ	153.0 MB	118_cols
NRX.GR57E20H.C777R88.D3.013.GZ	151.6 MB	118_cols
NRX.GR57E20H.C777R88.D3.014.GZ	149.6 MB	118_cols
NRX.GR57E20H.C777R88.D3.015.GZ	148.2 MB	118_cols
NRX.GR57E20H.C777R88.D3.016.GZ	147.3 MB	118_cols
NRX.GR57E20H.C777R88.D3.017.GZ	148.0 MB	118_cols
NRX.GR57E20H.C777R88.D3.018.GZ	145.8 MB	118_cols
NRX.GR57E20H.C777R88.D3.019.GZ	145.7 MB	118_cols
NRX.GR57E20H.C777R88.D3.020.GZ	144.9 MB	118_cols
NRX.GR57E20H.C777R88.D3.021.GZ	144.0 MB	118_cols
NRX.GR57E20H.C777R88.D3.022.GZ	143.5 MB	118_cols
NRX.GR57E20H.C777R88.D3.023.GZ	143.3 MB	118_cols
NRX.GR57E20H.C777R88.D3.024.GZ	42.1 MB	118_cols
NRX.GS57E20H.C777R88.D3.001.GZ	135.4 MB	118_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F5.M04.001.GZ	196.3 MB	38_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F5.M04.002.GZ	190.4 MB	38_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F5.M04.003.GZ	194.1 MB	38_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F5.M04.004.GZ	195.3 MB	38_cols
CDS.ZWKW.ALLERGAN.XPOPLAN.F5.M04.005.GZ	41.3 MB	38_cols
CDS.ZWKW1.ALLERGAN.XPOPLAN.F5.M07.001.GZ	41.3 MB	50_cols
CDS.ZWKT.ALLERGAN.XPO.F6.M04.001.GZ	289.9 MB	70_cols
CDS.ZWKT.ALLERGAN.XPO.F6.M04.002.GZ	277.8 MB	70_cols
CDS.ZWKT.ALLERGAN.XPO.F6.M04.003.GZ	89.4 MB	70_cols
CDS.ZWKT1.ALLERGAN.XPO.F6.M07.001.GZ	12. MB	70_cols

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XIV.   Exhibit 3 – IQVIA Xponent® Column Names by Schema Type

96 Months	48 Months	28 Months	4 Months
client_number	client_number	client_number	client_number
report_number	report_number	report_number	report_number
sra1_presc_zip	sra1_presc_zip	sra1_presc_zip	sra1_presc_zip
sra2_md_ims_id	sra2_md_ims_id	sra2_md_ims_id	sra2_md_ims_id
sra3_md_specialty	sra3_md_specialty	sra3_md_specialty	sra3_md_specialty
sra4_unknown	sra4_unknown	sra4_unknown	sra4_unknown
sales_category	sales_category	sales_category	sales_category
rx_type	rx_type	rx_type	rx_type
product_group_number	product_group_number	product_group_number	product_group_number
filler	filler	filler	filler
me_number_source_code	me_number_source_code	me_number_source_code	me_number_source_code
prescriber_last_name	prescriber_last_name	prescriber_last_name	prescriber_last_name
prescriber_first_name	prescriber_first_name	prescriber_first_name	prescriber_first_name
prescriber_middle_initial	prescriber_middle_initial	prescriber_middle_initial	prescriber_middle_initial
prescriber_street_address	prescriber_street_address	prescriber_street_address	prescriber_street_address
prescriber_city	prescriber_city	prescriber_city	prescriber_city
prescriber_state	prescriber_state	prescriber_state	prescriber_state
prescriber_zipcode	prescriber_zipcode	prescriber_zipcode	prescriber_zipcode
supplemental_data	supplemental_data	supplemental_data	supplemental_data
payor_plan	payor_plan	payor_plan	payor_plan
data_date	data_date	data_date	data_date
num_months_of_data	num_months_of_data	num_months_of_data	num_months_of_data
new_rx_1_month	new_rx_1_month	new_rx_1_month	new_rx_1_month
new_rx_2_month	new_rx_2_month	new_rx_2_month	new_rx_2_month
new_rx_3_month	new_rx_3_month	new_rx_3_month	new_rx_3_month
new_rx_4_month	new_rx_4_month	new_rx_4_month	new_rx_4_month
new_rx_5_month	new_rx_5_month	new_rx_5_month	
new_rx_6_month	new_rx_6_month	new_rx_6_month	
new_rx_7_month	new_rx_7_month	new_rx_7_month	
new_rx_8_month	new_rx_8_month		
new_rx_9_month	new_rx_9_month		
new_rx_10_month	new_rx_10_month		
new_rx_11_month	new_rx_11_month		
new_rx_12_month	new_rx_12_month		
new_rx_13_month			
new_rx_14_month			
new_rx_15_month			
new_rx_16_month			
new_rx_17_month			

new_rx_18_month			
new_rx_19_month			
new_rx_20_month			
new_rx_21_month			
new_rx_22_month			
new_rx_23_month			
new_rx_24_month			
total_rx_1_month	total_rx_1_month	total_rx_1_month	total_rx_1_month
total_rx_2_month	total_rx_2_month	total_rx_2_month	total_rx_2_month
total_rx_3_month	total_rx_3_month	total_rx_3_month	total_rx_3_month
total_rx_4_month	total_rx_4_month	total_rx_4_month	total_rx_4_month
total_rx_5_month	total_rx_5_month	total_rx_5_month	
total_rx_6_month	total_rx_6_month	total_rx_6_month	
total_rx_7_month	total_rx_7_month	total_rx_7_month	
total_rx_8_month	total_rx_8_month		
total_rx_9_month	total_rx_9_month		
total_rx_10_month	total_rx_10_month		
total_rx_11_month	total_rx_11_month		
total_rx_12_month	total_rx_12_month		
total_rx_13_month			
total_rx_14_month			
total_rx_15_month			
total_rx_16_month			
total_rx_17_month			
total_rx_18_month			
total_rx_19_month			
total_rx_20_month			
total_rx_21_month			
total_rx_22_month			
total_rx_23_month			
total_rx_24_month			
new_qty_1_month	new_qty_1_month	new_qty_1_month	new_qty_1_month
new_qty_2_month	new_qty_2_month	new_qty_2_month	new_qty_2_month
new_qty_3_month	new_qty_3_month	new_qty_3_month	new_qty_3_month
new_qty_4_month	new_qty_4_month	new_qty_4_month	new_qty_4_month
new_qty_5_month	new_qty_5_month	new_qty_5_month	
new_qty_6_month	new_qty_6_month	new_qty_6_month	
new_qty_7_month	new_qty_7_month	new_qty_7_month	
new_qty_8_month	new_qty_8_month		
new_qty_9_month	new_qty_9_month		
new_qty_10_month	new_qty_10_month		
new_qty_11_month	new_qty_11_month		
new_qty_12_month	new_qty_12_month		
new_qty_13_month			
new_qty_14_month			
new_qty_15_month			
new_qty_16_month			

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new_qty_17_month			
new_qty_18_month			
new_qty_19_month			
new_qty_20_month			
new_qty_21_month			
new_qty_22_month			
new_qty_23_month			
new_qty_24_month			
total_qty_1_month	total_qty_1_month	total_qty_1_month	total_qty_1_month
total_qty_2_month	total_qty_2_month	total_qty_2_month	total_qty_2_month
total_qty_3_month	total_qty_3_month	total_qty_3_month	total_qty_3_month
total_qty_4_month	total_qty_4_month	total_qty_4_month	total_qty_4_month
total_qty_5_month	total_qty_5_month	total_qty_5_month	
total_qty_6_month	total_qty_6_month	total_qty_6_month	
total_qty_7_month	total_qty_7_month	total_qty_7_month	
total_qty_8_month	total_qty_8_month		
total_qty_9_month	total_qty_9_month		
total_qty_10_month	total_qty_10_month		
total_qty_11_month	total_qty_11_month		
total_qty_12_month	total_qty_12_month		
total_qty_13_month			
total_qty_14_month			
total_qty_15_month			
total_qty_16_month			
total_qty_17_month			
total_qty_18_month			
total_qty_19_month			
total_qty_20_month			
total_qty_21_month			
total_qty_22_month			
total_qty_23_month			
total_qty_24_month			

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XV.   Exhibit 4 – IQVIA AMA Specialties

sra3_md_specialty	specialty_name	specialty_name_grouped
01ADM	Addiction Medicine	ADDICTION
02ADM	Addiction Medicine	ADDICTION
01CIM	Clinical Informatics	ADMINISTRATIVE/MANAGEMENT
01CIP	Clinical Informatics	ADMINISTRATIVE/MANAGEMENT
01CLI	Clinical Informatics - Internal Medicine	ADMINISTRATIVE/MANAGEMENT
01HOS	Hospitalist	ADMINISTRATIVE/MANAGEMENT
02HOS	Hospitalist	ADMINISTRATIVE/MANAGEMENT
02LM	Legal Medicine	ADMINISTRATIVE/MANAGEMENT
01LM	Legal Medicine	ADMINISTRATIVE/MANAGEMENT
02MDM	Medical Management	ADMINISTRATIVE/MANAGEMENT
01MDM	Medical Management	ADMINISTRATIVE/MANAGEMENT
01AM	Aerospace Medicine	AEROSPACE/HYPERBARIC/NUCLEAR
02AM	Aerospace Medicine	AEROSPACE/HYPERBARIC/NUCLEAR
01NM	Nuclear Medicine	AEROSPACE/HYPERBARIC/NUCLEAR
02NM	Nuclear Medicine	AEROSPACE/HYPERBARIC/NUCLEAR
02NR	Nuclear Radiology	AEROSPACE/HYPERBARIC/NUCLEAR
01NR	Nuclear Radiology	AEROSPACE/HYPERBARIC/NUCLEAR
02UM	Undersea and Hyperbaric Medicine - Preventive Medicine	AEROSPACE/HYPERBARIC/NUCLEAR
01UM	Undersea and Hyperbaric Medicine - Preventive Medicine	AEROSPACE/HYPERBARIC/NUCLEAR
01UME	Undersea and Hyperbaric Medicine - Emergency Medicine	AEROSPACE/HYPERBARIC/NUCLEAR
02UME	Undersea and Hyperbaric Medicine - Emergency Medicine	AEROSPACE/HYPERBARIC/NUCLEAR
01A	Allergy	ALLERGY/IMMUNOLOGY
02A	Allergy	ALLERGY/IMMUNOLOGY
02AI	Allergy and Immunology	ALLERGY/IMMUNOLOGY
01AI	Allergy and Immunology	ALLERGY/IMMUNOLOGY
01ALI	Clinical Laboratory Immunology - Allergy and Immunology	ALLERGY/IMMUNOLOGY
02IG	Immunology	ALLERGY/IMMUNOLOGY
01IG	Immunology	ALLERGY/IMMUNOLOGY
02ILI	Clinical and Laboratory Immunology - Internal Medicine	ALLERGY/IMMUNOLOGY
01ILI	Clinical and Laboratory Immunology - Internal Medicine	ALLERGY/IMMUNOLOGY
02PDA	Pediatric Allergy	ALLERGY/IMMUNOLOGY
01PDA	Pediatric Allergy	ALLERGY/IMMUNOLOGY
01PLI	Clinical and Laboratory Immunology - Pediatrics	ALLERGY/IMMUNOLOGY
02AN	Anesthesiology	ANESTHESIOLOGY
01AN	Anesthesiology	ANESTHESIOLOGY

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02OAN	Obstetric Anesthesiology	ANESTHESIOLOGY
01OAN	Obstetric Anesthesiology	ANESTHESIOLOGY
01PAN	Pediatric Anesthesiology - Anesthesiology	ANESTHESIOLOGY
02PAN	Pediatric Anesthesiology - Anesthesiology	ANESTHESIOLOGY
01PDN	Pediatrics/Anesthesiology	ANESTHESIOLOGY
01PMR		ANESTHESIOLOGY
02PMR		ANESTHESIOLOGY
01ACA	Adult Cardiothoracic Anesthesiology - Anesthesiology	CARDIOLOGY
02ACA	Adult Cardiothoracic Anesthesiology - Anesthesiology	CARDIOLOGY
01AHF	Advanced Heart Failure and Transplant Cardiology	CARDIOLOGY
02CD	Cardiovascular Disease	CARDIOLOGY
01CD	Cardiovascular Disease	CARDIOLOGY
01CDS		CARDIOLOGY
02CDS		CARDIOLOGY
01CHD	Adult Congenital Heart Disease	CARDIOLOGY
01CHS	Congenital Cardiac Surgery - Thoracic Surgery	CARDIOLOGY
01CTR	Cardiothoracic Radiology	CARDIOLOGY
02CTR	Cardiothoracic Radiology	CARDIOLOGY
01IC	Interventional Cardiology	CARDIOLOGY
02IC	Interventional Cardiology	CARDIOLOGY
02ICE	Clinical Cardiac Electrophysiology	CARDIOLOGY
01ICE	Clinical Cardiac Electrophysiology	CARDIOLOGY
01NC	Nuclear Cardiology	CARDIOLOGY
01PCS	Pediatric Cardiothoracic Surgery	CARDIOLOGY
01PDC	Pediatric Cardiology	CARDIOLOGY
02PDC	Pediatric Cardiology	CARDIOLOGY
01VM	Vascular Medicine	CARDIOLOGY
02VM	Vascular Medicine	CARDIOLOGY
04DGP		DENTISTRY
02D	Dermatology	DERMATOLOGY
01D	Dermatology	DERMATOLOGY
01DDL	Clinical and Laboratory Dermatological Immunology	DERMATOLOGY
01DMP	Dermatopathology	DERMATOLOGY
02DMP	Dermatopathology	DERMATOLOGY
02PDD	Pediatric Dermatology	DERMATOLOGY
01PDD	Pediatric Dermatology	DERMATOLOGY
01PRD	Procedural Dermatology	DERMATOLOGY
02PRD	Procedural Dermatology	DERMATOLOGY
02ACC	Anesthesiology Critical Care Medicine	EMERGENCY/CRITICAL
01ACC	Anesthesiology Critical Care Medicine	EMERGENCY/CRITICAL

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01CCA	Critical Care Medicine - Anesthesiology	EMERGENCY/CRITICAL
02CCA	Critical Care Medicine - Anesthesiology	EMERGENCY/CRITICAL
01CCE	Critical Care Medicine	EMERGENCY/CRITICAL
01CCM	Critical Care Medicine - Internal Medicine	EMERGENCY/CRITICAL
02CCM	Critical Care Medicine - Internal Medicine	EMERGENCY/CRITICAL
02CCP	Pediatric Critical Care Medicine	EMERGENCY/CRITICAL
01CCP	Pediatric Critical Care Medicine	EMERGENCY/CRITICAL
01CIE		EMERGENCY/CRITICAL
02EM	Emergency Medicine	EMERGENCY/CRITICAL
01EM	Emergency Medicine	EMERGENCY/CRITICAL
01EMP	Pediatrics/Emergency Medicine	EMERGENCY/CRITICAL
02EMP	Pediatrics/Emergency Medicine	EMERGENCY/CRITICAL
02EMS	Emergency Medical Services	EMERGENCY/CRITICAL
01EMS	Emergency Medical Services	EMERGENCY/CRITICAL
01MEM	Internal Medicine/Emergency Medicine	EMERGENCY/CRITICAL
02MEM	Internal Medicine/Emergency Medicine	EMERGENCY/CRITICAL
02OCC	Critical Care Medicine - Obstetrics and Gynecology	EMERGENCY/CRITICAL
01OCC	Critical Care Medicine - Obstetrics and Gynecology	EMERGENCY/CRITICAL
02PCC	Pulmonary Critical Care Medicine	EMERGENCY/CRITICAL
01PCC	Pulmonary Critical Care Medicine	EMERGENCY/CRITICAL
01PE	Pediatric Emergency Medicine - Emergency Medicine	EMERGENCY/CRITICAL
02PE	Pediatric Emergency Medicine - Emergency Medicine	EMERGENCY/CRITICAL
02PEM	Pediatric Emergency Medicine - Pediatrics	EMERGENCY/CRITICAL
01PEM	Pediatric Emergency Medicine - Pediatrics	EMERGENCY/CRITICAL
01DIA	Diabetes	ENDOCRINOLOGY
02DIA	Diabetes	ENDOCRINOLOGY
02END	Endocrinology, Diabetes, and Metabolism	ENDOCRINOLOGY
01END	Endocrinology, Diabetes, and Metabolism	ENDOCRINOLOGY
02PDE	Pediatric Endocrinology	ENDOCRINOLOGY
01PDE	Pediatric Endocrinology	ENDOCRINOLOGY
01REN	Reproductive Endocrinology and Infertility	ENDOCRINOLOGY
02REN	Reproductive Endocrinology and Infertility	ENDOCRINOLOGY
01CIF		FAMILY/GENERAL
02FM	Family Medicine	FAMILY/GENERAL
01FM	Family Medicine	FAMILY/GENERAL

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01FPP	Psychiatry/Family Medicine	FAMILY/GENERAL
02FPP	Psychiatry/Family Medicine	FAMILY/GENERAL
01GP	General Practice	FAMILY/GENERAL
02GP	General Practice	FAMILY/GENERAL
02GPM	General Preventive Medicine	FAMILY/GENERAL
01GPM	General Preventive Medicine	FAMILY/GENERAL
01IAN		FAMILY/GENERAL
01IFP	Internal Medicine/Family Medicine	FAMILY/GENERAL
02IFP	Internal Medicine/Family Medicine	FAMILY/GENERAL
02IM	Internal Medicine	FAMILY/GENERAL
01IM	Internal Medicine	FAMILY/GENERAL
01IMA	Internal Medicine/Anesthesiology	FAMILY/GENERAL
02IPM	Internal Medicine/Preventive Medicine	FAMILY/GENERAL
01IPM	Internal Medicine/Preventive Medicine	FAMILY/GENERAL
02MP	Internal Medicine/Psychiatry	FAMILY/GENERAL
01MP	Internal Medicine/Psychiatry	FAMILY/GENERAL
01MPD	Internal Medicine/Pediatrics	FAMILY/GENERAL
02MPD	Internal Medicine/Pediatrics	FAMILY/GENERAL
06NRP		FAMILY/GENERAL
07PHA		FAMILY/GENERAL
01PHP	Public Health and General Preventive Medicine	FAMILY/GENERAL
02PHP	Public Health and General Preventive Medicine	FAMILY/GENERAL
02GE	Gastroenterology	GASTROENTEROLOGY
01GE	Gastroenterology	GASTROENTEROLOGY
01CBG	Clinical Biochemical Genetics	GENETICS
01CCG	Clinical Cytogenetics	GENETICS
01CG	Clinical Genetics	GENETICS
02CG	Clinical Genetics	GENETICS
01CMG	Clinical Molecular Genetics	GENETICS
01MG	Medical Genetics	GENETICS
02MG	Medical Genetics	GENETICS
01MGG	Molecular Genetic Pathology - Medical Genetics	GENETICS
01MGP	Molecular Genetic Pathology - Pathology	GENETICS
01FPG	Geriatric Medicine - Family Medicine	GERIATRICS
02FPG	Geriatric Medicine - Family Medicine	GERIATRICS
01IMG	Geriatric Medicine - Internal Medicine	GERIATRICS
02IMG	Geriatric Medicine - Internal Medicine	GERIATRICS
02BBK	Blood Banking/Transfusion Medicine	HEMATOLOGY/PHLEBOTOMY
01BBK	Blood Banking/Transfusion Medicine	HEMATOLOGY/PHLEBOTOMY
02HEM	Hematology - Internal Medicine	HEMATOLOGY/PHLEBOTOMY
01HEM	Hematology - Internal Medicine	HEMATOLOGY/PHLEBOTOMY
01HMP	Hematology - Pathology	HEMATOLOGY/PHLEBOTOMY
02HMP	Hematology - Pathology	HEMATOLOGY/PHLEBOTOMY

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02PHL	Phlebology	HEMATOLOGY/PHLEBOTOMY
01PHL	Phlebology	HEMATOLOGY/PHLEBOTOMY
02HEP	Hepatology	HEPATOLOGY
01HEP	Hepatology	HEPATOLOGY
01PTP	Pediatric Transplant Hepatology	HEPATOLOGY
02THP	Transplant Hepatology - Internal Medicine	HEPATOLOGY
01THP	Transplant Hepatology - Internal Medicine	HEPATOLOGY
01ETX	Medical Toxicology - Emergency Medicine	MEDICAL TOXICOLOGY
02ETX	Medical Toxicology - Emergency Medicine	MEDICAL TOXICOLOGY
01PDT	Medical Toxicology - Pediatrics	MEDICAL TOXICOLOGY
01PTX	Medical Toxicology - Preventive Medicine	MEDICAL TOXICOLOGY
02NEP	Nephrology	NEPHROLOGY
01NEP	Nephrology	NEPHROLOGY
02PN	Pediatric Nephrology	NEPHROLOGY
01PN	Pediatric Nephrology	NEPHROLOGY
01BIN	Brain Injury Medicine	NEUROLOGY
01BIP	Brain Injury Medicine	NEUROLOGY
01CHN	Child Neurology	NEUROLOGY
02CHN	Child Neurology	NEUROLOGY
01CN	Clinical Neurophysiology	NEUROLOGY
02CN	Clinical Neurophysiology	NEUROLOGY
01ENR	Endovascular Surgical Neuroradiology	NEUROLOGY
02ENR	Endovascular Surgical Neuroradiology	NEUROLOGY
01EPL	Epilepsy	NEUROLOGY
01ES	Endovascular Surgical Neuroradiology	NEUROLOGY
01ESN	Endovascular Surgical Neuroradiology	NEUROLOGY
01N	Neurology	NEUROLOGY
02N	Neurology	NEUROLOGY
02NDN	Neurodevelopmental Disabilities - Psychiatry and Neurology	NEUROLOGY
01NDN	Neurodevelopmental Disabilities - Psychiatry and Neurology	NEUROLOGY
01NDP	Neurodevelopmental Disabilities - Pediatrics	NEUROLOGY
01NMN	Neuromuscular Medicine - Neurology	NEUROLOGY
02NMN	Neuromuscular Medicine - Neurology	NEUROLOGY
01NMP	Neuromuscular Medicine - Physical Medicine and Rehabilitation	NEUROLOGY
02NMP	Neuromuscular Medicine - Physical Medicine and Rehabilitation	NEUROLOGY
01NO	Neurotology - Otolaryngology	NEUROLOGY
02NO	Neurotology - Otolaryngology	NEUROLOGY

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01NP	Neuropathology	NEUROLOGY
02NS	Neurological Surgery	NEUROLOGY
01NS	Neurological Surgery	NEUROLOGY
01PYN	Psychiatry/Neurology	NEUROLOGY
02PYN	Psychiatry/Neurology	NEUROLOGY
01RNR	Neuroradiology	NEUROLOGY
02RNR	Neuroradiology	NEUROLOGY
02VN	Vascular Neurology	NEUROLOGY
01VN	Vascular Neurology	NEUROLOGY
02NTR	Nutrition	NUTRITION
01NTR	Nutrition	NUTRITION
02GYN	Gynecology	OBSTETRICS/GYNECOLOGY
01GYN	Gynecology	OBSTETRICS/GYNECOLOGY
02MFM	Maternal and Fetal Medicine	OBSTETRICS/GYNECOLOGY
01MFM	Maternal and Fetal Medicine	OBSTETRICS/GYNECOLOGY
02NPM	Neonatal-Perinatal Medicine	OBSTETRICS/GYNECOLOGY
01NPM	Neonatal-Perinatal Medicine	OBSTETRICS/GYNECOLOGY
02OBG	Obstetrics and Gynecology	OBSTETRICS/GYNECOLOGY
01OBG	Obstetrics and Gynecology	OBSTETRICS/GYNECOLOGY
02OBS	Obstetrics	OBSTETRICS/GYNECOLOGY
01OBS	Obstetrics	OBSTETRICS/GYNECOLOGY
01GO	Gynecological Oncology	ONCOLOGY
02GO	Gynecological Oncology	ONCOLOGY
01HO	Hematology/Oncology	ONCOLOGY
02HO	Hematology/Oncology	ONCOLOGY
02OMO	Musculoskeletal Oncology	ONCOLOGY
01OMO	Musculoskeletal Oncology	ONCOLOGY
02ON	Medical Oncology	ONCOLOGY
01ON	Medical Oncology	ONCOLOGY
01PHO	Pediatric Hematology/Oncology	ONCOLOGY
02PHO	Pediatric Hematology/Oncology	ONCOLOGY
02RO	Radiation Oncology	ONCOLOGY
01RO	Radiation Oncology	ONCOLOGY
01TR		ONCOLOGY
02TR		ONCOLOGY
02OPH	Ophthalmology	OPHTHALMOLOGY
01OPH	Ophthalmology	OPHTHALMOLOGY
02PO	Pediatric Ophthalmology	OPHTHALMOLOGY
01PO	Pediatric Ophthalmology	OPHTHALMOLOGY
01ESM	Sports Medicine - Emergency Medicine	ORTHOPEDICS
02ESM	Sports Medicine - Emergency Medicine	ORTHOPEDICS
01FSM	Sports Medicine - Family Medicine	ORTHOPEDICS
02FSM	Sports Medicine - Family Medicine	ORTHOPEDICS
01ISM	Sports Medicine - Internal Medicine	ORTHOPEDICS
02ISM	Sports Medicine - Internal Medicine	ORTHOPEDICS
02OAR	Adult Reconstructive Orthopedics	ORTHOPEDICS
01OAR	Adult Reconstructive Orthopedics	ORTHOPEDICS

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02OFA	Foot and Ankle, Orthopedics	ORTHOPEDICS
01OFA	Foot and Ankle, Orthopedics	ORTHOPEDICS
01OP	Pediatric Orthopedics	ORTHOPEDICS
02OP	Pediatric Orthopedics	ORTHOPEDICS
02OSM	Sports Medicine - Orthopedic Surgery	ORTHOPEDICS
01OSM	Sports Medicine - Orthopedic Surgery	ORTHOPEDICS
02OTR	Orthopedic Trauma Surgery	ORTHOPEDICS
01OTR	Orthopedic Trauma Surgery	ORTHOPEDICS
01PRS	Sports Medicine - Physical Medicine and Rehabilitation	ORTHOPEDICS
02PRS	Sports Medicine - Physical Medicine and Rehabilitation	ORTHOPEDICS
02PSM	Sports Medicine - Pediatrics	ORTHOPEDICS
01PSM	Sports Medicine - Pediatrics	ORTHOPEDICS
18ND		OTHER SPECIALTY
09OPT		OTHER SPECIALTY
01OS	Other Specialty	OTHER SPECIALTY
02OS	Other Specialty	OTHER SPECIALTY
08POD		OTHER SPECIALTY
01TY		OTHER/UNSPECIFIED SPECIALTY
17US	Unspecified Specialty	OTHER/UNSPECIFIED SPECIALTY
02US	Unspecified Specialty	OTHER/UNSPECIFIED SPECIALTY
99US	Unspecified Specialty	OTHER/UNSPECIFIED SPECIALTY
03US	Unspecified Specialty	OTHER/UNSPECIFIED SPECIALTY
01US	Unspecified Specialty	OTHER/UNSPECIFIED SPECIALTY
02APM	Pain Medicine - Anesthesiology	PAIN MEDICINE
01APM	Pain Medicine - Anesthesiology	PAIN MEDICINE
02HPA	Hospice and Palliative Medicine - Anesthesiology	PAIN MEDICINE
01HPA	Hospice and Palliative Medicine - Anesthesiology	PAIN MEDICINE
01HPD	Hospice and Palliative Medicine - Radiology	PAIN MEDICINE
02HPE	Hospice and Palliative Medicine - Emergency Medicine	PAIN MEDICINE
01HPE	Hospice and Palliative Medicine - Emergency Medicine	PAIN MEDICINE
01HPF	Hospice and Palliative Medicine - Family Medicine	PAIN MEDICINE
02HPF	Hospice and Palliative Medicine - Family Medicine	PAIN MEDICINE
02HPI	Hospice and Palliative Medicine - Internal Medicine	PAIN MEDICINE
01HPI	Hospice and Palliative Medicine - Internal Medicine	PAIN MEDICINE
01HPM	Hospice and Palliative Medicine	PAIN MEDICINE
02HPM	Hospice and Palliative Medicine	PAIN MEDICINE

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01HPN	Hospice and Palliative Medicine - Psychiatry and Neurology	PAIN MEDICINE
01HPO	Hospice and Palliative Medicine - Obstetrics and Gynecology	PAIN MEDICINE
01HPP	Hospice and Palliative Medicine - Pediatrics	PAIN MEDICINE
01HPR	Hospice and Palliative Medicine - Physical Medicine and Rehabilitation	PAIN MEDICINE
02HPR	Hospice and Palliative Medicine - Physical Medicine and Rehabilitation	PAIN MEDICINE
01PLM	Palliative Medicine	PAIN MEDICINE
02PLM	Palliative Medicine	PAIN MEDICINE
02PMD	Pain Medicine	PAIN MEDICINE
01PMD	Pain Medicine	PAIN MEDICINE
02PMN	Pain Medicine - Neurology	PAIN MEDICINE
01PMN	Pain Medicine - Neurology	PAIN MEDICINE
01PPN	Pain Medicine - Psychiatry	PAIN MEDICINE
02ATP	Anatomic Pathology	PATHOLOGY/EPIDEMIOLOGY
01ATP	Anatomic Pathology	PATHOLOGY/EPIDEMIOLOGY
01CLP	Clinical Pathology	PATHOLOGY/EPIDEMIOLOGY
02CLP	Clinical Pathology	PATHOLOGY/EPIDEMIOLOGY
01EP	Epidemiology	PATHOLOGY/EPIDEMIOLOGY
02EP	Epidemiology	PATHOLOGY/EPIDEMIOLOGY
01FOP	Forensic Pathology	PATHOLOGY/EPIDEMIOLOGY
02FOP	Forensic Pathology	PATHOLOGY/EPIDEMIOLOGY
01ID	Infectious Disease	PATHOLOGY/EPIDEMIOLOGY
02ID	Infectious Disease	PATHOLOGY/EPIDEMIOLOGY
01PCH	Chemical Pathology	PATHOLOGY/EPIDEMIOLOGY
01PCP	Cytopathology	PATHOLOGY/EPIDEMIOLOGY
02PCP	Cytopathology	PATHOLOGY/EPIDEMIOLOGY
01PDI	Pediatric Infectious Disease	PATHOLOGY/EPIDEMIOLOGY
02PDI	Pediatric Infectious Disease	PATHOLOGY/EPIDEMIOLOGY
01PP	Pediatric Pathology	PATHOLOGY/EPIDEMIOLOGY
02PP	Pediatric Pathology	PATHOLOGY/EPIDEMIOLOGY
02PTH	Anatomic/Clinical Pathology	PATHOLOGY/EPIDEMIOLOGY
01PTH	Anatomic/Clinical Pathology	PATHOLOGY/EPIDEMIOLOGY
02SP	Selective Pathology	PATHOLOGY/EPIDEMIOLOGY
01SP	Selective Pathology	PATHOLOGY/EPIDEMIOLOGY
01ADL	Adolescent Medicine - Pediatrics	PEDIATRICS
02ADL	Adolescent Medicine - Pediatrics	PEDIATRICS
02AMI	Adolescent Medicine - Internal Medicine	PEDIATRICS
01AMI	Adolescent Medicine - Internal Medicine	PEDIATRICS
01CAP	Child Abuse Pediatrics	PEDIATRICS
01CID		PEDIATRICS
02DBP	Developmental-Behavioral Pediatrics	PEDIATRICS

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01DBP	Developmental-Behavioral Pediatrics	PEDIATRICS
02PD	Pediatrics	PEDIATRICS
01PD	Pediatrics	PEDIATRICS
02PG	Pediatric Gastroenterology	PEDIATRICS
01PG	Pediatric Gastroenterology	PEDIATRICS
01PA	Clinical Pharmacology	PHARMACOLOGY
02PA	Clinical Pharmacology	PHARMACOLOGY
01PHM	Pharmaceutical Medicine	PHARMACOLOGY
17PHR		PHARMACOLOGY
02OM	Occupational Medicine	PHYSICAL/OCCUPATIONAL REHABILITATION
01OM	Occupational Medicine	PHYSICAL/OCCUPATIONAL REHABILITATION
02OMM	Osteopathic Manipulative Medicine	PHYSICAL/OCCUPATIONAL REHABILITATION
01OMM	Osteopathic Manipulative Medicine	PHYSICAL/OCCUPATIONAL REHABILITATION
02PM	Physical Medicine and Rehabilitation	PHYSICAL/OCCUPATIONAL REHABILITATION
01PM	Physical Medicine and Rehabilitation	PHYSICAL/OCCUPATIONAL REHABILITATION
01PRM	Pediatric Rehabilitation Medicine	PHYSICAL/OCCUPATIONAL REHABILITATION
02PRM	Pediatric Rehabilitation Medicine	PHYSICAL/OCCUPATIONAL REHABILITATION
02SCI	Spinal Cord Injury Medicine	PHYSICAL/OCCUPATIONAL REHABILITATION
01SCI	Spinal Cord Injury Medicine	PHYSICAL/OCCUPATIONAL REHABILITATION
01ADP	Addiction Psychiatry	PSYCHIATRY
02ADP	Addiction Psychiatry	PSYCHIATRY
02CHP	Child and Adolescent Psychiatry	PSYCHIATRY
01CHP	Child and Adolescent Psychiatry	PSYCHIATRY
02CPP	Pediatrics/Psychiatry/Child and Adolescent Psychiatry	PSYCHIATRY
01CPP	Pediatrics/Psychiatry/Child and Adolescent Psychiatry	PSYCHIATRY
01P	Psychiatry	PSYCHIATRY
02P	Psychiatry	PSYCHIATRY
02PFP	Forensic Psychiatry	PSYCHIATRY
01PFP	Forensic Psychiatry	PSYCHIATRY
99PSY		PSYCHIATRY
01PYA	Psychoanalysis	PSYCHIATRY
02PYG	Geriatric Psychiatry	PSYCHIATRY
01PYG	Geriatric Psychiatry	PSYCHIATRY
02PDP	Pediatric Pulmonology	PULMONOLOGY
01PDP	Pediatric Pulmonology	PULMONOLOGY

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01PUD	Pulmonary Disease	PULMONOLOGY
02PUD	Pulmonary Disease	PULMONOLOGY
01AR	Abdominal Radiology	RADIOLOGY
02AR	Abdominal Radiology	RADIOLOGY
01DR	Diagnostic Radiology	RADIOLOGY
02DR	Diagnostic Radiology	RADIOLOGY
01IRI		RADIOLOGY
02MSR	Musculoskeletal Radiology	RADIOLOGY
01MSR	Musculoskeletal Radiology	RADIOLOGY
01PDR	Pediatric Radiology	RADIOLOGY
02PDR	Pediatric Radiology	RADIOLOGY
01R	Radiology	RADIOLOGY
02R	Radiology	RADIOLOGY
01RAA		RADIOLOGY
01VIR	Vascular and Interventional Radiology	RADIOLOGY
02VIR	Vascular and Interventional Radiology	RADIOLOGY
02MM	Medical Microbiology	RESEARCH
01MM	Medical Microbiology	RESEARCH
01RP	Radiological Physics	RESEARCH
02PPR	Pediatric Rheumatology	RHEUMATOLOGY
01PPR	Pediatric Rheumatology	RHEUMATOLOGY
01RHU	Rheumatology	RHEUMATOLOGY
02RHU	Rheumatology	RHEUMATOLOGY
01SME	Sleep Medicine	SLEEP MEDICINE
02SME	Sleep Medicine	SLEEP MEDICINE
02AS	Abdominal Surgery	SURGERY
01AS	Abdominal Surgery	SURGERY
02CCS	Surgical Critical Care - Surgery	SURGERY
01CCS	Surgical Critical Care - Surgery	SURGERY
01CFS	Craniofacial Surgery	SURGERY
02CRS	Colon and Rectal Surgery	SURGERY
01CRS	Colon and Rectal Surgery	SURGERY
02CTS		SURGERY
01CTS		SURGERY
01DS	Dermatologic Surgery	SURGERY
02DS	Dermatologic Surgery	SURGERY
01FPR	Female Pelvic Medicine and Reconstructive Surgery	SURGERY
02FPS	Facial Plastic Surgery	SURGERY
01FPS	Facial Plastic Surgery	SURGERY
02GS	General Surgery	SURGERY
01GS	General Surgery	SURGERY
02HNS	Head and Neck Surgery	SURGERY
01HNS	Head and Neck Surgery	SURGERY
01HS	Hand Surgery	SURGERY
02HS	Hand Surgery	SURGERY
01HSO	Hand Surgery - Orthopedics	SURGERY

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02HSO	Hand Surgery - Orthopedics	SURGERY
01HSP	Hand Surgery - Plastic Surgery	SURGERY
02HSP	Hand Surgery - Plastic Surgery	SURGERY
01HSS	Hand Surgery - Surgery	SURGERY
02HSS	Hand Surgery - Surgery	SURGERY
02NCC		SURGERY
01NCC		SURGERY
01NSP	Pediatric Surgery- Neurological	SURGERY
02NSP	Pediatric Surgery- Neurological	SURGERY
04OMF	Oral and Maxillofacial Surgery	SURGERY
01OMF	Oral and Maxillofacial Surgery	SURGERY
02ORS	Orthopedic Surgery	SURGERY
01ORS	Orthopedic Surgery	SURGERY
01OSS	Orthopedic Surgery of the Spine	SURGERY
02OSS	Orthopedic Surgery of the Spine	SURGERY
02OT		SURGERY
01OT		SURGERY
02OTO	Otolaryngology	SURGERY
01OTO	Otolaryngology	SURGERY
02PDO	Pediatric Otolaryngology	SURGERY
01PDO	Pediatric Otolaryngology	SURGERY
01PDS	Pediatric Surgery - Surgery	SURGERY
02PDS	Pediatric Surgery - Surgery	SURGERY
02PRO	Proctology	SURGERY
01PRO	Proctology	SURGERY
02PS	Plastic Surgery	SURGERY
01PS	Plastic Surgery	SURGERY
02PSH	Plastic Surgery within the Head and Neck	SURGERY
01PSH	Plastic Surgery within the Head and Neck	SURGERY
02PSO	Plastic Surgery within the Head and Neck - Otolaryngology	SURGERY
01PSO	Plastic Surgery within the Head and Neck - Otolaryngology	SURGERY
01SO	Surgical Oncology	SURGERY
02SO	Surgical Oncology	SURGERY
01TRS	Trauma Surgery	SURGERY
02TRS	Trauma Surgery	SURGERY
02TS	Thoracic Surgery	SURGERY
01TS	Thoracic Surgery	SURGERY
01TTS	Transplant Surgery	SURGERY
02TTS	Transplant Surgery	SURGERY
01UPR	Female Pelvic Medicine and Reconstructive Surgery	SURGERY
01VS	Vascular Surgery	SURGERY
02VS	Vascular Surgery	SURGERY

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02U	Urology	UROLOGY
01U	Urology	UROLOGY
01UP	Pediatric Urology	UROLOGY
02UP	Pediatric Urology	UROLOGY
05VET		VETERINARY

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XVI.   Exhibit 5 – Previous Testimony

Case
In re National Prescription Opiate Litigation, United States District Court of Ohio (Northern), MDL 28-4, Case No.: 17-md-2804
In re Opioid Litigation, Supreme Court of the State of New York, County of Suffolk, Case Nos.: County of Suffolk, 400001/2017; County of Nassau, 400008/2017; and New York State, 400016/2018
Barry Staubus in his official capacity as District Attorney General for the Second Judicial District, et al. v. Purdue Pharma, L.P., et al., Law Court for Sullivan County at Kingsport, Tennessee, Case No.: C-41916

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XVII.   Exhibit 6 – Considered List

Lacey R. Keller August 3, 2020 Expert Report:
CT2 Reliance Materials

	KELLER - CONSIDERED		
Date	**Author**	**Title**	**Journal or Publication**
	Center for Drug Evaluation and Research	Drug Approvals and Databases - National Drug Code Directory	U.S. Food and Drug Administration Home Page, Center for Drug Evaluation and Research
	Food and Drug Administration	Code of Federal Regulations Title 21	Code of Federal Regulations
Aug-17	Centers for Medicare & Medicaid Services	Opioid Morphine EQ Conversion Factors August 2017	CMS.gov
Nov-17	IQVIA	QuintilesIMS is now IQVIA	IQVIA.com Newsroom
2017	IQVIA	National Sales Perspectives & National Prescription Audit Overview	
Jul-05	IQVIA	Prescription Information	
7/1/1905	IMS Health	Appropriate Use of IMS Information: Financial Community Presentation	
2017	IQVIA	National Sales Perspectives & National Prescription Audit Overview	
7/5/2005	Claims Journal	W. Va. WCC Terminates Physician	Claims Journal
Jul-05	Nevro	Leadership Team	Nevro.com - About Us
1/7/2003	U.S. Attorney's Office	Cabell County Doctor Sentenced to Two Years in Prison for Federal Drug Crime	Federal Bureau of Investigation, Western District of Pennsylvania - Press Releases
3/10/2020	Courtney Hessler	Ex-Barboursville doctor attempted to have sister killed to gain millions in inheritance	The Herald Dispatch
Jan-17	WSAZ News Staff	UPDATE: Former physician sentenced to prison after obtaining pain pills by fraud	WSAZ News
7/17/2013	Kyla Asbury	Former employee files sexual harrassment suit against Tri-State Medical Center	West Virginia Record
2020		About Dr. MacFarland	www.dawnmacfarlandmd.com
2020		Dr. Dawn MacFarland, MD	Healthgrades.com
10/2/2019	Chris McGreal	Why were millions of opioid pills sent to a West Virginia town of 3,000?	The Guardian
		Quick Facts - Cabell County, West Virginia	U.S. Census Bureau
	Centers for Medicare and Medicaid	NPPES NPI Registry	U.S. Department of Health and Human Services
2012	IQVIA	IMS MVP Solutions User's Guide	
Mar-09	DMD Data	Intended Use of AMA Physician Masterfile Codes for Self-Designation of Practice Specialties/Areas of Practice	Direct Medical Data
		AMA Physician Specialty Groups and Codes	American Medical Association
2016	Advocacy Resource Center	AMA Health Workforce Mapper User Manual	American Medical Association
	IQVIA	Monthly Data MHJ IMS XPONENT	
	National Library of Medicine	National Institutes of Mental Health	DailyMed
		FDA Online Label Repository	Food and Drug Administration
7/1/2020	U.S. Department of Justice	ARCOS NDC Text File	deadiversion.usdoj.gov
Aug-17	Center for Medicare and Medicaid Services	Opioid Oral Morphine Milligram Equivalent (MME) Conversion Factors	https://www.cms.gov/Medicare/Prescription-Drug-coverage/PrescriptionDrugCovContra/Downloads/Opioid-Morphine-EQ-Conversion-Factors-Aug-2017.pdf
2020	United States Census Bureau	Welcome to Geocoder	
Nov-18	U.S. Food & Drug Administration	National Drug type Dictionary	www.deadiversion.usdoj.gov/arcos/ndc/ndcfile.txt
Oct-10	Drug Enforcement Administration	NDC Dictionary Instructions	
Jan-18	U.S. Food & Drug Administration	National Drug type Directory	
Aug-17	Centers for Disease Control and Prevention	Opioid Oral Morphine Milligram Equivalent (MME) Conversion Factors	
Apr-2019	Centers for Medicare and Medicaid Services	NDC: Based On Drug Products in the Medicaid Drug Rebate Program	

Lacey R. Keller August 3, 2020 Expert Report:
CT2 Reliance Materials

2020	United States Census Bureau	Geocoder	https://geocoding.geo.census.gov/geocoder
	United States Census Bureau	United States Census Data 1997 – 1999	https://www.census.gov/population/estimates/state/st-99-7.txt
	United States Census Bureau	United States Census Data 2000 – 2009	https://www2.census.gov/programs-surveys/popest/datasets/2000-2010/intercensal/state/st-est00int-alldata.csv
	United States Census Bureau	United States Census Data 2010 – 2017	https://www2.census.gov/programs-surveys/popest/datasets/2010-2017/national/asrh/nc-est2017-agesex-res.csv

DEPOSITIONS CONSIDERED			
1/17/2019		Deposition Transcript of Demir Bingol	

BATES CONSIDERED			
			ABDCMDL00003707
			ABDCMDL00141584
			ABDCMDL00141589
			ABDCMDL00176929
			ABDCMDL00248607
			ABDCMDL00248608
			ABDCMDL00248609
			ABDCMDL00248612
			ABDCMDL00269683
			ABDCMDL00282553
			ABDCMDL00306517
			ABDCMDL00306518
			ABDCMDL00322487
			ABDCMDL00322491
			ABDCMDL00322551
			ABDCMDL00359516
			ABDCMDL00516130
			ABDCMDL01930158
			ACTAVIS0280761
			ALLERGAN_MDL_00327297
			ALLERGAN_MDL_02167865 - ALLERGAN_MDL_02485011
			CAH_MDL_PRIORPROD_DEA07_00945980
			CAH_MDL_PRIORPROD_DEA07_00945982
			CAH_MDL_PRIORPROD_HOUSE_0000079
			CAH_NYConsolidated-0151612
			CAH_NYConsolidated-1061300
			CAH_FEDWV_00004273
			DE0033480 - DE0033486
			EPI000521550
			JAN-OH-00017030
			MCKMDL00332263
			MCKMDL00357572
			MCKMDL00446527
			MCKMDL00515990
			MCKMDL00402789
			MCKMDL01208679
			MCKSTCT00000132
			MNK-T1_0001172427
			PPLP003360321
			PPLPC031000256122
			TEVA_MDL_A_02812072
			WV_BOM00000966

			MCK-HOI-002-0001342
			US-DEA-00002430
			HDS_MDL_00406827
			MCKMDL00329623
			MCK_WVAAG_00000551
			MCKMDL00364970
			CAH_MDL2804_02113128
			CAH_MDL2804_02113129
			CAH_MDL2804_02211825
			DEA_Rannazzisi-00003170
OTHER			
7/3/2018		Cover Letter of July 3, 2018 Production from Allergan Counsel "MDL005"	
8/8/2018		Cover Letter of August, 8, 2018 Production from Allergan Counsel "MDL013"	
8/10/2018		Cover Letter of August, 10, 2018 Production from Allergan Counsel "IQVIA MDL014"	
9/13/2018		Cover Letter of September 13, 2018 Production from Allergan Counsel "MDL020-021"	
10/5/2018		Cover Letter of October 5, 2018 Production from Allergan Counsel "MDL024-MDL025"	
8/10/2018		Cover Letter of August 10, 2018 Production from Allergan Counsel "MDL 2804"	
12/17/2019	James E. Rafalski	Analysis of Distributor and Manufacturer Regulatory Compliance to Maintain Effective Controls for the Prevention of Diversion of Controlled Substances	Filed *In Re National Prescription Opiate Litigation* , United States District Court of Ohio (Northern), MDL 2804, Case No. 17-md-2804.
8/3/2020	James E. Rafalski	Analysis of Distributor Regulatory Compliance to Maintain Effective Controls for the Prevention of Diversion of Controlled Substances	Filed In Re National Prescription Opiate Litigation, United States District Court of Ohio (Northern), MDL 2804, Case No. 17-md-2804.
7/19/2019	Lacey R. Keller	Expert Analysis of Lacey R. Keller	Filed In Re National Prescription Opiate Litigation, United States District Court of Ohio (Northern), MDL 2804, Case No. 17-md-2804.
12/19/2019	Lacey E. Keller	Expert Report of Lacey Keller	*In re Opioid Litigation* , Supreme Court of the State of New York, County of Suffolk, Case Nos.: County of Suffolk, 400001/2017; County of Nassau, 400008/2017; and New York State, 400016/2018
	West Virginia Board of Medicine	Medical License History of Deleno Webb	https://wvbom.wv.gov/public/search/details.asp
	West Virginia Board of Medicine	Medical License History of David Caraway	https://wvbom.wv.gov/public/search/details.asp
	West Virginia Board of Osteopathic Medicine	Medical License History of Philip Fisher	https://www.wvbdosteo.org/verify/details.asp
	West Virginia Board of Medicine	Medical License History of Gregory Chaney	https://wvbom.wv.gov/public/search/details.asp
	West Virginia Board of Medicine	Medical License History of John Tiano	https://wvbom.wv.gov/public/search/details.asp
	West Virginia Board of Medicine	Medical License History of Dawn MacFarland	https://wvbom.wv.gov/public/search/details.asp
	West Virginia Board of Osteopathic Medicine	Medical License History of Anita Dawson	https://www.wvbdosteo.org/verify/details.asp
	West Virginia Board of Medicine	Medical License History of Chandos Tackett	https://wvbom.wv.gov/public/search/details.asp
	West Virginia Board of Medicine	Medical License History of David Patick	https://wvbom.wv.gov/public/search/details.asp

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	West Virginia Board of Medicine	Medical License History of Gregory Carico	https://wvbom.wv.gov/public/search/details.asp
	West Virginia Board of Medicine	Medical License History of Shawn Coffman	https://wvbom.wv.gov/public/search/details.asp
	West Virginia Board of Medicine	Medical License History of Terrence Triplett	https://wvbom.wv.gov/public/search/details.asp
		AMA Physician Codes	
		AMA Physician Codes	http://www.dmddata.com/2009_05_sdps.pdf
		AMA Physician Codes	https://www.wvbdosteo.org/verify/details.asp
	IMS	IMS MVP Solutions User's Guide	
	IMS	IQVIA Appropriate Use	http://us.imshealth.com/marketing/fincom/appropriateuse_presentation.pdf
	IMS	MHJ Layout Xponent	
	IMS	NSP NPA Training Deck IQVIA	
		Opioid Morphine EQ Conversion Factors August 2017	https://www.cms.gov/Medicare/Prescription-Drug-coverage/PrescriptionDrugCovContra/Downloads/Opioid-Morphine-EQ-Conversion-Factors-Aug-2017.pdf
	IQVIA	IQVIA Prescription Information - United States	https://www.iqvia.com/locations/united-states/solutions/commercial-operations/essential-information/prescription-information
	IQVIA	Quintiles IMS is now IQVIA	https://www.iqvia.com/newsroom/2017/11/quintilesims-is-now-iqvia
		FDA Code of Regulations Title 21	
		National Drug Code Directory Homepage	
*All Materials Considered in the drafting of Expert Report date 8/3/2020			